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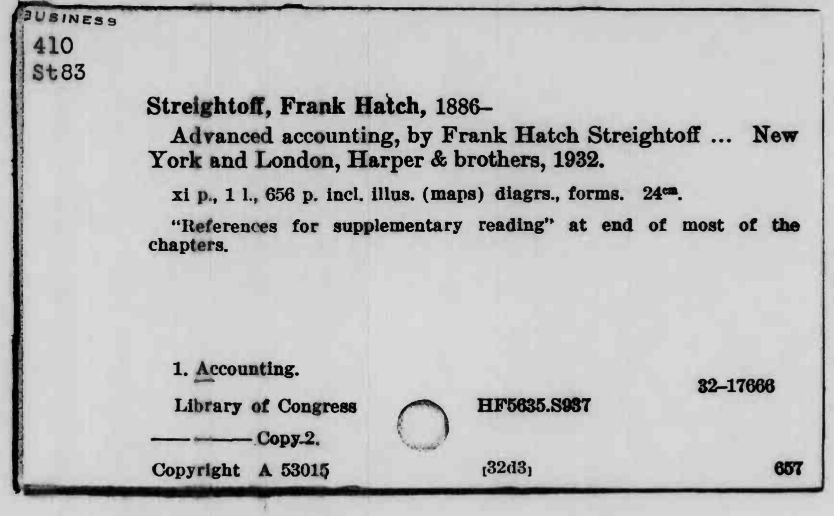

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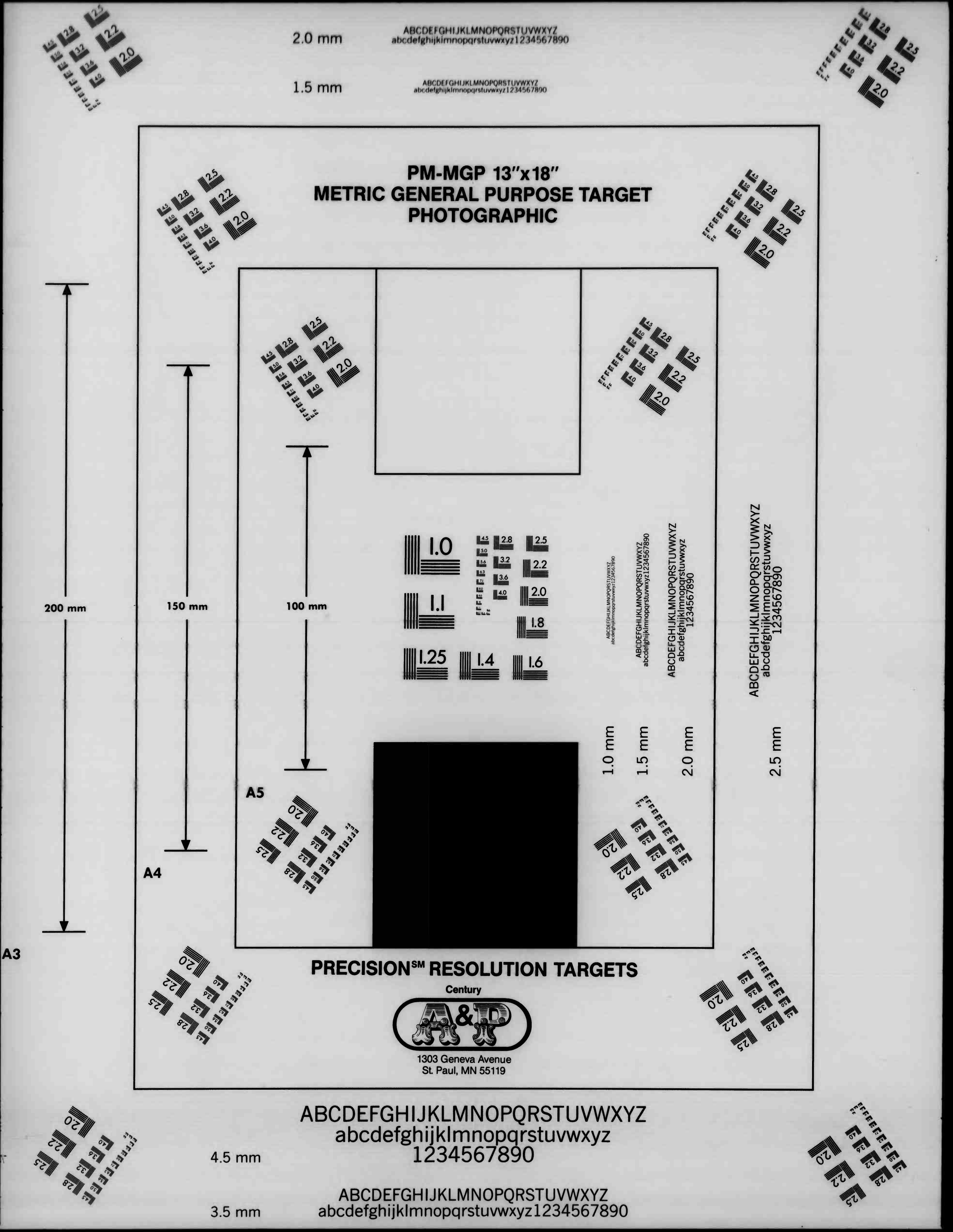

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ADVANCED ACCOUNTING

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TO THE MEMORY OF

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PREFACE

The student, as he is found on campus and in extension classes, has been ever in mind during the preparation of this book. His needs and interests shaped the experimental mimeographed edition, and his reactions have suggested many improvements. The writer's purpose has been to produce a concise, teachable text for second-year university courses in accounting which should (1) build upon the first year's work a well rounded knowledge of accounting principles, (2) illustrate the wide range of technic in applying these principles to different types of businesses, (3) afford training in analysis, and (4) indicate some of the services of accounting to management.

It is believed that the arrangement of topics is pedagogically sound, proceeding from what should be familiar and comparatively simple to what is new and difficult. At the end of each chapter are reading references and questions which may be used to provoke thought, promote discussion, and widen knowledge. At the close of the formal text are problems, carefully grouped to illustrate particular chapters. There is more of the problem material than will be used in the typical course, which will enable the instructor to select what best meets the needs of his class. About sixty per cent of these problems are taken directly, or with some adaptations, from the C. P. A. examinations of states which do not use the Institute tests, which leaves the Institute problems fresh for more advanced courses. The rather non-technical glossary should save students much time whenever they come upon unfamiliar terms.

Occasional passages in this book parallel material in the *Elementary Accounting*. This repetition has been introduced deliberately, sometimes to bring together the foundations of students having varied introductory training, but always to enrich the fund of information.

Although some instructors may find time too short for a formal study of the last three chapters, the subjects of interest, the applications of mathematics to valuation, and graphic presentation have been included because of their growing practical importance.

Frances Doan Streightoff has been a present help at every stage in the preparation of this text. Professor Juna Lutz kindly criticized the mathematical passages; Gerald Redding, J.D., examined the parts involving law; Lawrence F. Orr, President of the Indiana State Board of Accounts, made suggestions for the chapter on municipal accounting; and C. O. Herdrich, C.P.A., was so good as to review the entire manuscript. It would be impossible to name the many friends and students who have furnished suggestions—often unwittingly.

Frank Hatch Streightoff.

May, 1932

ADVANCED ACCOUNTING

CHAPTER I

THE CONSTRUCTION OF BALANCE SHEETS

The Form of Financial Statements.—A financial statement should never be an end in itself, but, rather, a tool of the manager, of the owner, of the creditor, of the investor, or of the regulator, seeking knowledge concerning a business unit. It is therefore unwise to standardize rigidly the form of any statement for universal use. The arrangement, the amount of detail exhibited, and even the exact contents of statements may well vary to meet the differing interests of the parties who will read them, and to fit the circumstances of diverse types of business organizations. Certain characteristics, however, are common to all well constructed statements.

In the first place, there must be a title setting forth explicitly the exact legal name of the organization whose affairs are exhibited, the type of statement, and the date of the status shown or the period covered by the operations. The importance of a specific designation of the organization concerned is illustrated by the fact that in Indiana alone there are in the official files of the Secretary of State the names of over sixty thousand corporations. Among these names are many confusing resemblances. It is therefore imperative that the statement caption include the exact title without any alteration. It is not even allowable to abbreviate "Company" to "Co.," nor may "Inc." be expanded to "Incorporated." Unless something else is specifically stated in the title, a balance sheet represents condition at the close of business on the day designated. Occasionally two balance sheets are presented for the same day, in which case the headings should indicate that one depicts the situation before and the other after the occurrence of some very important event, such as the acquisition of a new plant, the change from stock of par value to stock having no par value, or a refinancing. The caption of any statement of operation should either mention the dates at the beginning and the end of the period covered, or should designate that space of time by some other exact description, such as "for the calendar year 193–" or "for the fiscal year ended June 30, 193–." In short, the title of every statement should be complete and precise.

Second, the phraseology should be clear throughout every statement. In order to prevent possible misunderstanding, each subhead and each item should be worded in accordance with accounting usage, ambiguous terms should be duly qualified, and peculiar trade expressions should be avoided unless the prospective readers of the statement are familiar with them. Broad, general titles should be shunned studiously, and dissimilar items should not be consolidated under a blanket caption. For example, to place in a balance sheet such an item as "Land, Buildings, Patents, Trade Secrets, and Goodwill" is an accounting sin akin to deliberate deception.

Third, the items should be grouped in homogeneous classes, and the group totals, as well as the individual amounts, should be shown in order that the relative importance of each factor and of each class may be realized.

Fourth, the layout of the statement should be planned to emphasize the important captions and amounts. This emphasis is achieved by the use of different columns for the figures, by indentations of the subheads, by variations of type, by underscoring major titles, and by a judicious use of vertical spacing. The order in which items appear may be used to emphasize those of commanding weight. In the balance sheets of trading companies, for example, current assets should appear first, but public utilities ordinarily place the fixed assets first because the major investment is in the plant and on the condition of this plant depends earning power. It may be helpful to think of a statement as a chapter of a book divided into several paragraphs. Each paragraph tells a part of the story, and the effectiveness of the story depends on the sequence of its elements. Each paragraph has a topic sentence—the heading; a development—the items; and a concluding summary—the total or the difference.

Fifth, the statement should be written so that it may be understood by a person unfamiliar with accounting technic. This implies an arrangement of the material according to a logical development as consistent as possible with the manner of thinking of the moderately well-informed stockholder.

Sixth, every statement should set forth the truth as nearly as it can be determined. Since there is an element of estimate in every valuation, these estimates should be conservative and consistent with all the knowable facts. This point is epitomized in such a maxim as "anticipate no profit, allow for every loss."

Seventh, the statement should follow the recognized standard forms just as far as is consistent with the purpose to be achieved, but peculiarities of organization, of situations, or of aims may justify departures from these standard forms. The amount of detail to be presented may differ with the groups for whom the statements are prepared.

Eighth, the appearance of the statement should be attractive. The type should be easily read, the lines and the data should not be crowded, the proportions of the page should be planned to please. While it is true that the financial statement is drawn up for business purposes, evidence of attention to detail creates a spirit of confidence in the content.

The Balance Sheet.—Nowhere have these principles been applied with such care and intelligence as in the construction of balance sheets. The balance sheet may be known by other names, such as a Statement of Assets and Liabilities, a Statement of Resources and Liabilities, or a Statement of Condition, but it is essentially a classified statement of the assets, the liabilities, and the net worth of an organization at a particular time, prepared from double entry books. As the definition implies, there are three main divisions of a balance sheet: sections listing assets, liabilities, and net worth.

The number of subdivisions of assets will differ according to the types of assets owned, the purpose of the statement, and the theories of the accountant. In many published statements the assets are grouped as current, fixed, and deferred; sometimes a fourth category, "other assets;" is added either for emphasis or because the tripartite division is not adequate. In general, it is best to classify the assets in six groups, as follows:

1. Current assets, or cash and those items which, in the normal course of business, will be converted into cash directly or indirectly within a relatively short period of time. Usually a year is considered a short period of time, although for some purposes the maximum life of a current asset may be fixed at a shorter period.
2. Fixed assets, or material things which are owned but which are not normally converted into cash within a short period of time and which are not held as investments. Ordinarily such assets are used in the business until they have to be retired because of depreciation, obsolescence, or inadequacy.
3. Deferred assets, or prepayments of expenses, and material things which are used up in carrying on the business, as are fuel, lubricants, and office supplies.[1]
4. Investments, or stocks, bonds, and mortgages which are to be held indefinitely, advances to subsidiaries, and, sometimes, material assets, such as land, held for future use or as a source of outside revenue. (Investments made for the temporary employment of funds should be classed as current assets.)
5. Intangible assets, or goodwill and exclusive privileges, such as concessions, franchises, copyrights, patents, and trade-marks.
6. Other assets, a category set up to include any assets which are

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[1] See also pages 97, 98.

of uncertain nature or which do not fall naturally into the other five classes. Examples are "suspense" accounts, unamortized damage by the elements, and abandoned property.

Among the liabilities there are three groups:

1. Current liabilities, or those which must be met within a short time. (A year is ordinarily considered a short time.)
2. Fixed liabilities, or those which do not fall due for payment within a year of the date of issue.
3. Deferred liabilities, or obligations to render services or to deliver goods in return for payment already received.

Since most of the deferred liabilities are prepayments for services that must be rendered within a short period of time, they are usually best grouped with the current liabilities. When, however, an advance payment covers a term of years, as do many insurance premiums and lump-sum payments for leaseholds, it is desirable to show such deferred liabilities in a separate class. Occasionally, either for emphasis of some particular item or because the exact nature of the obligation has not been determined, a group of "other liabilities" is shown on the balance sheet.

The presentation of the net worth varies with the type of ownership. In sole proprietorships and partnerships the balance sheet should normally contain just one capital account for each owner. But if partners have made loans to the business distinct from their investments, these loans should be presented as separate net worth items, since they are not liabilities to outsiders. Moreover, if partners have arranged to keep their capital accounts at fixed amounts, distributed profits left in the business even temporarily may be exhibited in personal accounts on the balance sheet. The net worth of corporations, of joint stock companies, and of trusts is exhibited as capital stock and surplus or deficit. Surplus may be appropriated as reserves. Corporations which are required by law to accumulate stipulated surpluses out of earnings have set a somewhat widely followed custom of carrying some temporarily fixed amount as surplus and placing the balance of the real surplus in a category called Undivided Profits. Non-stock corporations, associations, and societies usually present the proprietorship under the simple title of "net worth," although some use net worth for the original proprietorship and maintain a surplus account for additions resulting from operations.

Sequence in the Balance Sheet.—A great deal of discussion has centered about the problem of the arrangement of the items in the balance sheet. There seems to be quite general agreement that the assets, the liabilities, and the net worth items should be segregated in three main divisions. Old customs, however, are so hard to break that many statements are still made without any distinction between obligations to outsiders and interests of proprietors, all being grouped as liabilities. Often, too, one finds the proprietorship items separated as in Figure 2, the statement of the New York Telephone Company, and in Figure 3, the balance sheet of the New York Central Railroad Company. But the Form of Balance Sheet recommended by the Federal Reserve Board, Figure 6, and the blanks for statements adopted by the National Association of Credit Men, by clearing house associations, and by many banks, class all of the net worth items together. Thus the doctrines of the accountants are being accepted by high authority.

"Marshaling" the items, or arranging them in the most desirable sequence, is a matter of considerable importance. Figure 1 illustrates the "report" form of balance sheet. In this form the assets are listed and totaled; then the liabilities are presented, their total being placed under the sum of the assets; finally, the net worth items are shown, their aggregate being placed under the totals of the assets and of the liabilities. This form corresponds to the well known accounting equation:

Assets — Liabilities = Net Worth

The report form comports well with the logical relations of net worth to assets and liabilities, for the claims of creditors must be satisfied out of the assets before anything is left to the proprietors. Moreover, the report form is easily understood by the man who is unacquainted with accounting practice. When the statement must be planned to fit into the columns of a periodical or on to letter-size paper, the report form is ordinarily better adapted to the space.

Probably the "account" form of balance sheet, illustrated by Figures 2, 3, and 5, is more widely used in America than the report form. It has a tendency to appeal to the person versed in accounts, because, in general, debit balances appear on the left side and credit balances on the right; thus, in a sense, the statement seems like a balanced account. This is particularly evident in Figure 5 where the treasurer of a safe deposit company shows nine months' profit on a balance sheet as "Balance" in his report to the directors. The account form facilitates comparison of related items, such as current assets with current liabilities, or fixed assets with funded debt. When placed on facing pages, whether typed or printed, the account form of balance sheet has a pleasing symmetry that is entirely lacking in the report form. When all has been said, however, there is little preference to be given to either of these forms.

THE MODEL CORPORATION

BALANCE SHEET

December 31, 1931

ASSETS

Current Assets				
Cash				
On Hand			$ 2,000.00	
In Bank			173,000.00	$ 175,000.00
Notes and Accounts Receivable				
Notes Receivable		$ 30,000.00		
Less: Notes Receivable Discounted		10,000.00	$ 20,000.00	
Accounts Receivable			230,000.00	
			$250,000.00	
Less: Reserve for Bad Debts		$ 10,000.00		
Reserve for Discounts		3,000.00	13,000.00	237,000.00
Inventories				
Raw Materials			$ 28,000.00	
Goods in Process			48,000.00	
Finished Goods			82,000.00	158,000.00
Accrued Assets				
Accrued Interest Receivable			$ 1,000.00	
Accrued Rents Receivable			1,000.00	2,000.00
Other Current Assets				
Liberty Bonds			$ 25,000.00	
Advances to Officers			5,000.00	
Stock Subscription Notes			30,000.00	60,000.00
Total Current Assets				$ 632,000.00
Fixed Assets	Cost	Depreciation	Net Value	
Land	$ 250,000.00		$250,000.00	
Factory Building	350,000.00	$ 90,000.00	260,000.00	
Machinery and Equipment	350,000.00	70,000.00	280,000.00	
Office Equipment	60,000.00	18,000.00	42,000.00	
Employees' Cottages	40,000.00	10,000.00	30,000.00	
Totals	$1,050,000.00	$188,000.00		862,000.00
Deferred Assets				
Bond Discount and Expense			$ 30,000.00	
Prepaid Interest Expense			1,000.00	
Prepaid Insurance			6,000.00	37,000.00
Sinking Fund Investments				50,000.00
Intangible Assets—Patents				19,000.00
Total Assets				$1,600,000.00

LIABILITIES

Current Liabilities			
Notes Payable		$ 50,000.00	
Accounts Payable		61,000.00	
Accrued Liabilities			
Interest on Bonds	$ 12,500.00		
Federal Taxes	52,800.00		
Interest Expense	500.00	65,800.00	
Dividends Payable			
On Preferred Stock	$ 7,000.00		
On Common Stock	30,000.00	37,000.00	
Deferred Liabilities			
Unearned Rents Received		3,000.00	
		$216,800.00	
Contingent Liability, Litigation Pending	$ 25,000.00		
Fixed Liabilities			
5% Sinking Fund Bonds Payable		500,000.00	
Total Liabilities			716,800.00

NET WORTH

Capital Stock			
7% Cumulative Preferred Stock	$ 300,000.00		
Less: Stock in Treasury	100,000.00	$200,000.00	
Common Stock	$ 400,000.00		
Less: Unissued Stock	100,000.00	300,000.00	
		$500,000.00	
Surplus			
Sinking Fund Reserve	$ 50,000.00		
Unappropriated Surplus	333,200.00	383,200.00	
Total Net Worth			$ 883,200.00

FIGURE 1

A third type of balance sheet known as the "double account" form is presented in Figure 4. This statement is in two sections: the first presents the permanent assets (fixed assets, investments, and intangibles), and the funded debt and net worth; the second section presents those items which make up working capital. If the closed books are in balance, the "debit" balance in one section will equal the "credit" balance in the other. These balancing items appear in the statement as "Financing Section" and as "Operating Section" respectively. This type of balance sheet has no advantage over the more usual American forms. In Great Britain it has a peculiar use for public utilities which are required to show in their reports how the money received from the

The New York Telephone Company

DESCRIPTIVE BALANCE SHEET · *December 31, 1930*

ASSETS

FIXED CAPITAL:		
Land and Buildings Real estate used for telephone purposes.	$115,461,167.70	
Telephone Plant and Equipment Telephone property such as central office and subscribers' station equipment, poles, wire, cable, underground conduit, right of way, etc.	606,979,653.73	
General Equipment Office furniture and fixtures, storeroom and garage equipment, motor vehicles and tools and implements.	13,723,841.82	$736,164,663.25
OTHER PERMANENT INVESTMENTS:		
Investment Securities Investments in stocks and bonds of affiliated companies.	40,602,480.89	
Advances to System Corporations Funds advanced to affiliated companies for construction, equipment and betterments.	95,000.00	
Miscellaneous Investments Real estate not now used for telephone purposes.	1,350,905.37	42,048,386.26
WORKING ASSETS:		
Cash and Deposits Cash on hand and in bank to meet current needs.	7,625,413.32	
Bills Receivable Collectible obligations in the form of notes due on demand or within one year.	1,108,390.69	
Accounts Receivable Current accounts due the company from subscribers and others for telephone and miscellaneous services less provision for uncollectible accounts; also, cash advanced to employees and agents as working funds.	17,491,603.88	
Materials and Supplies Telephone supplies held in storerooms and yards available for immediate use.	2,709,334.04	28,934,741.93
ACCRUED INCOME NOT DUE Unmatured interest, dividends and rents receivable applying to the period ended December 31, 1930, but not due until after that date.		1,984,528.12
DEFERRED DEBIT ITEMS:		
Sinking Fund Assets Cash held by trustees under provisions of trust indentures for the retirement of outstanding bonds.	1,381,993.30	
Prepayments Rents, insurance, cost of directories and other expenses which apply to periods subsequent to December 31, 1930.	1,880,056.62	
Unamortized Debt Discount and Expense Balance of discount and expense pertaining to bonds outstanding periodically reduced by charges to income during the life of the bonds.	2,401,863.60	
Other Deferred Debits Miscellaneous debit items, the final disposition of which had not been determined at the end of the year.	1,694,341.15	7,358,254.67
TOTAL ASSETS		$816,490,574.23

FIGURE 2

LIABILITIES

CAPITAL STOCK:			
Common Stock Par value of common stock outstanding.		$312,050,000.00	
Preferred Stock Par value of preferred stock outstanding.		25,000,000.00	
Premiums on Capital Stock Excess over par value received for sale of stock.		171,244.26	$337,221,244.26
LONG TERM DEBT:			
Bonds Face value of all bonds outstanding.		130,436,480.00	
Real Estate Mortgages Amount of real estate mortgages outstanding.		839,520.00	
Advances from System Corporations Amounts borrowed from American Telephone and Telegraph Company for construction, equipment and betterments.		67,600,000.00	
Notes Notes sold to Trustee of Pension Fund.		13,753,403.36	212,629,403.36
WORKING LIABILITIES:			
Accounts Payable Amounts owing for payrolls, materials, rents and sundry miscellaneous items which are in process of payment.		14,632,950.29	
Subscribers' Deposits and Service Billed in Advance Deposits held as security for the payment of bills and amounts billed for service to be rendered in subsequent months.		2,166,114.89	16,799,065.18
ACCRUED LIABILITIES NOT DUE Liabilities such as taxes, interest, dividends, rents, etc., which apply to the period ended December 31, 1930, but not due until after that date.			8,973,831.63
DEFERRED CREDIT ITEMS Provision in respect of pending accident cases, and miscellaneous credit items the final disposition of which had not been determined at the end of the year.			570,161.53
FIXED CAPITAL RESERVES:			
Reserve for Accrued Depreciation Provision made for the ultimate retirement of telephone property when it has served its useful life.		179,241,399.50	
Reserve for Amortization of Intangible Capital Provision for the ultimate retirement of right of way.		1,392,652.20	180,634,051.70
SURPLUS:			
Corporate Surplus Appropriated Surplus appropriated to cover contingencies not provided for in other reserves.		1,518,140.97	
Corporate Surplus Unappropriated Surplus accumulated during the history of the company which is invested in the business.		58,144,675.60	59,662,816.57
Balance December 31, 1929	$54,094,206.97		
Undistributed net income for year	4,519,028.12		
	58,613,235.09		
Miscellaneous deductions (net)	468,559.49		
Balance December 31, 1930	$58,144,675.60		
TOTAL LIABILITIES			$816,490,574.23

FIGURE 2

The New York Central Railroad Company

COMPARATIVE CONDENSED GENERAL BALANCE SHEET, DECEMBER 31, 1930 and 1929

ASSETS

1929		Investments		1930	Comparison
$616,171,536 75		Investment in road		$645,533,570 73	$29,362,033 98 Inc
		Investment in equipment			
177,101,436 65		Trust		198,340,260 92	21,238,824 27 Inc
248,877,327 04		Owned		245,049,666 28	3,827,660 76 Dec
140,204,745 90		Improvements on leased railway property		156,198,929 64	15,994,183 74 Inc
307 91		Deposits in lieu of mortgaged property sold		530 35	222 44 Inc
31,895,429 48		Miscellaneous physical property		32,934,425 16	1,038,995 68 Inc
		Investments in affiliated companies			
	$149,924,774 47	Stocks	$152,492,041 87		2,567,267 40 Inc
	10,686,777 86	Bonds	8,799,821 46		1,886,956 40 Dec
	12,176,545 32	Notes	12,938,544 32		761,999 00 Inc
	170,160,242 96	Advances	169,097,889 82		1,062,353 14 Dec
342,948,340 61				343,328,297 47	$379,956 86 Inc
		Other investments			
	$28,001,519 04	Stocks	$28,001,569 04		50 00 Inc
	7,026,597 85	Bonds	1,083,987 68		5,942,610 17 Dec
	1,478,191 26	Notes	1,115,042 26		363,149 00 Dec
	12,672,825 08	Advances	13,163,996 25		491,171 17 Inc
	8,916 00	Miscellaneous	45,190 84		36,274 84 Inc
49,188,049 23				43,409,786 07	$5,778,263 16 Dec
$1,606,387,173 57		TOTAL INVESTMENTS		$1,664,795,466 62	$58,408,293 05 Inc
		Current assets			
$17,286,467 09		Cash		$25,678,566 10	$8,392,099 01 Inc
75,000 00		Demand loans and deposits		585,000 00	510,000 00 Inc
5,376,560 79		Special deposits		366,552 55	5,010,008 24 Dec
1,631,534 46		Loans and bills receivable		8,313 35	1,623,221 11 Dec
2,743,480 94		Traffic and car-service balances receivable		4,160,859 28	1,417,378 34 Inc
4,138,031 94		Net balance receivable from agents and conductors		5,059,952 23	921,920 29 Inc
11,334,284 13		Miscellaneous accounts receivable		15,878,085 59	4,543,801 46 Inc
30,313,427 97		Material and supplies		38,130,633 68	7,817,205 71 Inc
8,266,445 74		Interest and dividends receivable		4,296,718 42	3,969,727 32 Dec
387,915 85		Rents receivable		365,422 67	22,493 18 Dec
286,375 35		Other current assets		565,890 25	279,514 90 Inc
$81,839,524 26		TOTAL CURRENT ASSETS		$95,095,994 12	$13,256,469 86 Inc
		Deferred assets			
$192,571 03		Working fund advances		$258,218 39	$65,647 36 Inc
4,444,869 03		Insurance and other funds		4,460,084 69	15,215 66 Inc
2,298,506 73		Other deferred assets		8,575,503 56	6,276,996 83 Inc
$6,935,946 79		TOTAL DEFERRED ASSETS		$13,293,806 64	$6,357,859 85 Inc
		Unadjusted debits			
$138,950 41		Rents and insurance premiums paid in advance		$150,160 80	$11,210 39 Inc
11,424,919 95		Discount on funded debt		11,008,208 81	416,711 14 Dec
125,001 00		Securities acquired from lessor companies (per contra)		125,001 00	—
14,845,615 77		Other unadjusted debits		15,606,651 11	761,035 34 Inc
$26,534,487 13		TOTAL UNADJUSTED DEBITS		$26,890,021 72	$355,534 59 Inc
$1,721,697,131 75				$1,800,075,289 10	$78,378,157 35 Inc

FIGURE 3

The New York Central Railroad Company

COMPARATIVE CONDENSED GENERAL BALANCE SHEET, DECEMBER 31, 1930 and 1929

LIABILITIES

1929	Stock	1930	Comparison
$463,709,235 00	Capital stock	$499,259,735 00	$35,550,500 00 Inc
4,880,240 90	Premium on capital stock	4,880,240 90	—
$468,589,475 90	TOTAL CAPITAL STOCK	$504,139,975 90	$35,550,500 00 Inc
	Long term debt		
	Funded debt unmatured		
$76,754,203 98	Equipment obligations	$76,773,336 65	$19,132 67 Inc
547,951,000 00	Mortgage bonds	547,951,000 00	—
17,560,200 00	Debenture bonds	17,560,200 00	—
21,000 00	Real estate mortgages	—	21,000 00 Dec
$642,286,403 98		$642,284,536 65	$1,867 33 Dec
21,600,000 00	Non-negotiable debt to affiliated companies	5,019,196 52	16,580,803 48 Dec
$663,886,403 98	TOTAL LONG TERM DEBT	$647,303,733 17	$16,582,670 81 Dec
$1,132,475,879 88	TOTAL CAPITALIZATION	$1,151,443,709 07	$18,967,829 19 Inc
	Current liabilities		
$22,000,000 00	Loans and bills payable	$25,000,000 00	$3,000,000 00 Inc
6,197,552 26	Traffic and car service balances payable	9,480,573 22	3,283,020 96 Inc
24,846,165 70	Audited accounts and wages payable	23,288,261 59	1,557,904 11 Dec
2,612,329 81	Miscellaneous accounts payable	1,602,506 43	1,009,823 38 Dec
2,485,783 48	Interest matured unpaid	2,463,387 98	22,395 50 Dec
9,274,135 90	Dividend declared, payable February 2, 1931	9,985,149 90	711,014 00 Inc
165,707 08	Dividends matured unpaid	178,430 93	12,723 85 Inc
133,090 00	Funded debt matured unpaid	131,090 00	2,000 00 Dec
5,268,379 45	Unmatured interest accrued	5,295,786 97	27,407 52 Inc
1,229,132 68	Unmatured rents accrued	2,730,387 49	1,501,254 81 Inc
5,479,000 27	Other current liabilities	7,748,279 07	2,269,278 80 Inc
$79,691,276 63	TOTAL CURRENT LIABILITIES	$87,903,853 58	$8,212,576 95 Inc
	Deferred liabilities		
$14,715,322 52	Liability to lessor companies for equipment	$14,715,322 52	
10,647,685 17	Other deferred liabilities	26,525,955 05	$15,878,269 88 Inc
$25,363,007 69	TOTAL DEFERRED LIABILITIES	$41,241,277 57	$15,878,269 88 Inc
	Unadjusted credits		
$12,443,630 84	Tax liability	$17,030,857 93	$4,587,227 09 Inc
2,103,904 47	Insurance and casualty reserves	2,459,684 13	355,779 66 Inc
2,055,880 69	Accrued depreciation—road	2,395,333 20	339,452 51 Inc
137,118,759 81	Accrued depreciation—equipment	151,804,837 26	14,686,077 45 Inc
1,988,197 94	Accrued depreciation—miscellaneous physical property	2,559,982 09	571,784 15 Inc
125,001 00	Liability to lessor companies for securities acquired (per contra)	125,001 00	—
30,078,387 59	Other unadjusted credits	52,835,342 36	22,756,954 77 Inc
$185,913,762 34	TOTAL UNADJUSTED CREDITS	$229,211,037 97	$43,297,275 63 Inc
	Corporate surplus		
$1,541,771 85	Additions to property through income and surplus	$1,790,430 07	$248,658 22 Inc
1,701,054 96	Miscellaneous fund reserves	1,701,054 96	—
295,010,378 40	Profit and loss—balance	286,783,925 88	8,226,452 52 Dec
$298,253,205 21	TOTAL CORPORATE SURPLUS	$290,275,410 91	$7,977,794 30 Dec
$1,721,697,131 75		$1,800,075,289 10	$78,378,157 35 Inc

FIGURE 3 (*cont.*)

sale of stocks and bonds has been used in providing permanent capital assets.

A "comparative" balance sheet is really a statement showing two or more balance sheets of the same organization at different dates, the amounts being displayed in parallel columns. Figure 3 illustrates an actual comparative balance sheet as it was presented in the annual report to stockholders. It will be noted that this statement has a special column for comparison. This is particularly valuable in saving the time of those who are studying the affairs of the business closely. The advantage of the comparative balance sheet is that it facilitates study of the changes in the real accounts of an organization during a period. Some of these variations may be of great importance, as, for example, a considerable change in working capital, additions to plant, or an alteration in capital structure. Changes in the plant and in the capital structure are clearly shown. The comparative balance sheet is further analyzed in Chapter XI, in the preparation of the "statement of application of funds," which is an exhibition of the manner in which the assets have been redistributed during the period.

THE X CORPORATION
BALANCE SHEET
December 31, 1931
Financing Section

Land	$ 25,000.00	Capital Stock	$100,000.00
Building	40,000.00	Bonds Payable	60,000.00
Machinery	85,000.00	Surplus	90,000.00
Patents and Goodwill	15,000.00		
Organization Expense	10,000.00		
Operating Section	75,000.00[a]		
	$250,000.00		$250,000.00

Operating Section

Cash	$ 25,000.00	Accounts Payable	$ 30,000.00
Accounts Receivable	40,000.00	Notes Payable	20,000.00
Notes Receivable	25,000.00	Accrued Liabilities	5,000.00
Inventories	40,000.00	Financing Section	75,000.00[a]
	$130,000.00		$130,000.00

[a] Balancing items.

FIGURE 4
DOUBLE ACCOUNT FORM OF BALANCE SHEET

A further question of sequence in the balance sheet is the order of appearance of the several classes of assets and liabilities. In Figures 1 and 6 the assets and liabilities are marshaled in the order of relative "liquidness," current items appearing first. This order is generally preferred by those who are considering granting credit, because their primary interest is in immediate solvency. That is why the Federal Reserve Board, the National Association of Credit Men, and a great number of banks furnish report blanks for prospective debtors in which the current assets stand first among the assets and the current liabilities first among the equities. On the other hand, a very large proportion of the published balance sheets present the fixed items before the current. This order is partly traditional, and partly due to a belief in the supreme importance of the plant and equipment. The fixed items are placed first in Figures 2, 3, 5, and 7. Except to the credit analyst, it probably makes little difference whether the liquid assets precede or follow the fixed. Anyone who is capable of interpreting statements at all can find the items he wishes, regardless of the order of their presentation. The important thing is that the items be classified correctly. Consistency is always worth while, so if fixed assets are shown first, fixed liabilities should lead their section, and *vice versa.*

Following the current and fixed assets it is quite usual to present the deferred assets, the investments, and the intangibles in order, although the exact sequence is a trifling matter. It is usually futile to compare the liquidness of such assets, none of which are ordinarily converted into cash in the normal course of business.

In short, assets, liabilities, and net worth items should be segregated on the balance sheet in three absolutely distinct groups. Within these groups the items should be marshaled to emphasize the features of most importance to those who will study the statement, but the well established classifications should be utilized. There can be no universal preference for either the report or the account form of balance sheet. The comparative balance sheet is most revealing. The person making a balance sheet should present his data in the clearest and most precise manner he can devise from the recognized models. Once having chosen a form for an organization, he should adhere to that arrangement and classification year after year unless there is manifest advantage in a change, for uniformity facilitates comparisons.

Questions of Content.—Among the questions that arise in the construction of balance sheets may be one as to just what items should be included. For example, a dividend on cumulative preferred stock may have been passed. There may be an impulse to set up a liability for "Accumulated Dividends on Preferred Stock," but there is no such liability unless the directors have actually declared the dividend. Yet it would not be fair to keep the investing public in ignorance of this cumulation. A good solution is a footnote stating that "Cumulative dividends on preferred stock have not been paid since . . ."

A similar solution is proposed in the matter of purchase commitments. If the usual volume of orders for materials and supplies is outstanding and there has been no considerable decline in price since the placing of the orders, no attention need be paid to these contracts. But if unfilled purchase orders are of exceptionally large volume, or if there has been a marked decline in prices since they were placed, a footnote to the balance sheet should call attention to the situation. If the decline in prices has been such as to make it unwise or impossible to accept delivery, there is usually a liability for failure to keep the contract. Such a liability should be shown in the statement itself, either as a "reserve for purchase commitments" or as a "liability on rescinded purchase contracts."

Goods in transit may be included in the inventory provided title has been vested in the purchaser. In such cases there should be a corresponding liability among the accounts payable. In most businesses, however, it is customary to withhold entry of the purchase invoice until the shipment has been received. When the volume of purchases in transit is normal, there is no reason to depart from this custom unless the invoices are paid before the arrival of the goods, which may be done in order to secure the cash discounts. If such payment has been made, the invoice should of course be entered on the purchase record and the shipment should be counted as part of the inventory. Again, when there is an extraordinary volume of purchases in transit, a footnote stating the fact is highly desirable.

Merchandise out on consignment should be included among the inventories as a distinct item at cost, which may include a reasonable sum for transportation to the consignee. It is contrary to fact to set up an account receivable from a consignee for goods which he has not sold. Likewise, merchandise received on consignment does not have any proper place among the assets, for it is not owned by the consignee; neither should he set up a liability to the consignor for the goods until they have been sold.

A balance sheet does not tell the whole story if contingent liabilities are ignored. Perhaps the best way of presenting contingent liabilities arising out of the endorsement of notes and bills of exchange is to list the commercial paper which has been endorsed or guaranteed among the current assets and also among the current liabilities in specifically named accounts, and to include the amounts in the totals of these groups. A second method of showing these contingent liabilities appears in Figure 1, wherein the item Notes Receivable includes both the notes on hand and those out under endorsement. The amount of

Notes Receivable is placed in an inner column in order that the sum of the notes out under discount may be deducted from it, thus showing the net amount of notes on hand in the column to be added. A third device is to list the contingent liabilities among the current items, but to place the amount in an inner column and not to include it in finding the class total. If the amount is underscored it stands out prominently. This method is illustrated by the Litigation Pending in Figure 1.

ASSETS AND LIABILITIES

September 30, 1931

Equipment	$108,753.10		Capital Stock		$100,000.00
Depreciation	12,707.49	$ 96,045.61	Surplus	$14,834.51	
			Gain on Bonds	629.88	15,464.39
Furniture and Fixtures	$ 1,213.42		Unearned Rents		24,463.67
			Reserve for Taxes		3,422.97
Depreciation	558.49	654.93	Rent		1,705.45
Bonds	$ 21,855.00		Coupons Found		100.00
Gain	629.88	22,484.88	Balance[a]		7,579.81
Mortgages		19,000.00			
Kings County Trust Company	$ 8,731.07				
Bank of America	1,036.37				
Cash on Hand	23.04	9,790.48			
Storage Earned	$ 1,723.00				
Interest Accrued	651.99				
Box Rents Due	1,684.40	4,059.39			
Locks on Hand	$ 521.00				
Unexpired Insurance	180.00	701.00			
		$152,736.29			$152,736.29

[a] This item, Balance, is the current profit which has not yet been set aside for dividends or formally closed into surplus.

FIGURE 5

BALANCE SHEET OF A SAFE DEPOSIT COMPANY

Fourth, in some cases it is desirable to set aside a reserve out of surplus for contingent liabilities. A fifth way of bringing such liabilities to the attention of the reader is a footnote, as in Figure 6. With all these methods available, there is no excuse for a failure to present all known contingent liabilities.

In drawing up the balance sheet of a corporation, the only liabilities to be considered are those contracted by the corporation itself. But if

PROFORMA BALANCE SHEET OF THE FEDERAL RESERVE BOARD, May, 1929

Assets

- Cash:
  - On hand..
  - In bank..
- Notes and accounts receivable:
  - Notes receivable, customers' (not past due)..
  - Accounts receivable, customers' (not past due)..
  - Notes receivable, customers' (past due)..
  - Accounts receivable, customers' (past due)..
  - Less—
    - Reserve for bad debts..
    - Reserve for discounts, freight, allowances, etc..
- Inventories:
  - Raw material on hand..
  - Goods in process..
  - Uncompleted contracts..
  - Less payment on account..
  - Finished goods on hand..
- Other current assets:
  - Marketable securities..
  - Indebtedness of officers, stockholders, and employees..
  - Indebtedness of affiliated companies (current)..
    - Total current assets..
- Investments:
  - Securities of affiliated companies..
  - Indebtedness of affiliated companies—not current..
  - Other (state important items separately)..
- Fixed assets:
  - Land used for plant..
  - Buildings used for plant..
  - Machinery..
  - Tools and plant equipment..
  - Patterns and drawings..
  - Office furniture and fixtures..
  - Other fixed assets (describe fully)..
  - ....
    - Total fixed assets..
  - Less—
    - Reserves for depreciation, depletion, etc. (describe fully)..
- Deferred charges:
  - Prepaid expenses, interest, insurance, taxes, etc..
- Other assets (describe fully)..
  - Total..

FIGURE 6

Liabilities

- Notes and accounts payable:
  - Secured liabilities—
    - Obligations secured by—
      - Customers' accounts assigned, to the amount of..
      - Liens on inventories..
      - Securities deposited as collateral..
      - Other collateral..
  - Unsecured notes—
    - Acceptances made for merchandise or raw material purchases..
    - Notes given for merchandise or raw material purchased..
    - Notes given to banks for money borrowed..
    - Notes sold through brokers..
    - Notes given for machinery, additions to plant, etc..
    - Notes due to stockholders, officers or employees..
  - Unsecured accounts—
    - Accounts payable for purchases (not yet due)..
    - Accounts payable for purchases (past due)..
    - Accounts payable to stockholders, officers, or employees..
- Accrued liabilities (interest, taxes, wages, etc.)..
- Other current liabilities (describe fully)..
- ....
  - Total current liabilities..
- Fixed liabilities:
  - Obligations secured by—
    - Mortgage on plant (due date)..
    - Mortgage on other real estate (due date)..
    - Chattel mortgage on machinery or equipment (due date)..
    - Other funded indebtedness (describe fully)..
- ....
    - Total liabilities..
- Net worth:
  - If a corporation—
    - (*a*) Preferred stock (less stock in treasury)..
    - (*b*) Common stock (less stock in treasury)..
    - (*c*) Surplus:
      - Capital or paid in
      - Arising from revaluation of capital assets (see footnote)..
      - Earned (or deficit)..
  - If a person or a partnership—
    - (*a*) Capital..
    - (*b*) Undistributed profits or deficit..
    - Total..
- Contingent liabilities—classify and explain.

NOTE.—When the balance sheet is that of a corporation, the State under whose laws it is organized should be indicated.

FIGURE 6

a sole proprietorship is under consideration a different problem arises. The entire property of the owner, business or personal, is subject to the claims of all his creditors, business and personal. The balance sheet of the proprietor as a business man may depict a perfectly sound venture, and yet he may have contracted outside liabilities that exceed his business assets. It is, therefore, considered a safe rule for the accountant drawing the balance sheet of a sole proprietorship to list all of the owner's liabilities which might constitute claims against the business assets. Since partnership creditors have preference over individuals' creditors on the assets of a partnership, it is sufficient for the firm balance sheet to list only the partnership liabilities.

A balance sheet may look better on the surface if the assets are shown net of the liabilities associated with them. For instance, a building may be placed on the statement at its value less the amount of the mortgage against it, the liability itself not appearing, or accounts payable may be deducted from accounts receivable and only the net amount shown. Such a practice is considered dishonest, in that it has a tendency to conceal the existence of the liabilities. In addition, this method of balance sheet construction would make deceptive the ratios used by bankers, credit men, and investors in interpreting statements. All of the assets and all of the liabilities should be set forth.

A balance sheet is more enlightening if it presents its information fully; for example, the title of a bond issue or of a mortgage should state the maturity and the interest rate. Likewise, it is desirable to mention the basis of valuation, as is done in the Bond and Stock items in Figure 7. If any assets are pledged, the situation should be indicated. The point is that the reader of the statement should have as much material as he needs for its intelligent study. On the other hand, there should not be a cluttering of detail. For many purposes a condensed statement accompanied by supporting schedules serves admirably.

The conclusion of this section is that the balance sheet should show all assets and all liabilities, including contingent liabilities and liabilities of sole proprietors which may result in claims on the property of the business; that liabilities should not be offset against assets to make a better appearance; that attention should be directed to unusually large purchase commitments or to probable losses which will arise out of them; that sufficient information should be furnished to enable the intelligent reader to estimate correctly the condition of the enterprise, and that nothing not owned should be included among the assets. Although all these points may seem self-evident, they are too often ignored in practice.

Difficult Problems of Classification.—Even one who is well versed in the principles of balance sheet construction finds some items

hard to classify. Valuation reserves, for example, appear in published statements sometimes as deductions from assets, sometimes as liabilities, and frequently as a part of the net worth. Theoretically the best place for the valuation reserve is as a deduction from the asset to which it inheres. There are four well recognized methods of handling the valuation reserves in harmony with this doctrine. In Figure 1 two of these methods are used. The sum of the reserves for bad debts and for discounts is placed under and deducted from the total of notes and accounts receivable. The second method involves such a columnar presentation as that of the Fixed Assets in Figure 1. This form is excellent where there are many assets with corresponding reserves. Figure 6 offers a third satisfactory method, the deduction of the sum of all the depreciation reserves from the sum of the fixed assets. A fourth good method is to list the depreciable assets at their net value after deducting the reserve, as is done in Figure 7. According to the best accounting usage, if an asset is stated at a certain value without any reference to depreciation, that stated value should be net after deducting depreciation from cost. Classing depreciation reserves among the liabilities, as is done in Figure 2, is not theoretically correct, but may be necessary to meet state regulatory provisions or space limitations.

Discounts on bonds payable are most conveniently considered as deferred assets, and should be shown in that group. Reasoning by a fallacious analogy, some accountants would place discounts on capital stock with the deferred assets. Such a discount is really a reduction of the capital received; therefore its logical place is as a deduction from net worth. Premiums and discounts on treasury stock bought or sold are capital surplus items. It is well to write off into surplus, discounts on capital stock and on treasury stock sold, as rapidly as the growth of the surplus warrants. This is particularly important for the discount on stock issued, as the writing off of such a discount against earned surplus, in accordance with properly worded resolutions of the board of directors, may be the means of making the stock full-paid. This is accomplished by the declaration of a dividend and by having the individual stockholders receipt for the dividend in consideration of the application of the amount thereof against the discounts on their several subscriptions.

Treasury stock and unissued stock are not assets in any sense. They represent rather withdrawals of capital, or the mere potentiality of increasing capital through the issue of additional shares already authorized. Hence, if either treasury stock or unissued stock appears in a balance sheet, it should be as a deduction from capital stock. It frequently suffices merely to exhibit the capital stock in the hands of the public as "Capital Stock Issued and Outstanding."

Accounts with officers, stockholders, or employees may really belong among the current assets, but they should not be hidden under the caption of "accounts receivable." Such accounts usually contribute little or nothing to profits, and they may be very hard to collect. Similarly, stock subscriptions should not be considered current unless they are actually collectible within a reasonable period. In the old proforma balance sheet of the Federal Reserve Board, these items were especially classified with temporary investments as securities, and their total was added to that of the "quick assets" to give the sum of current assets. Some accountants show unpaid stock subscriptions as a deduction from stock subscribed among the net worth items.

PROVIDENT MUTUAL LIFE INSURANCE CO. OF PHILADELPHIA

BALANCE SHEET

December 31, 1930

ASSETS		LIABILITIES	
Real Estate..........	$ 6,237,768.63	Insurance Reserve computed by the Pennsylvania Insurance Department.......	$205,708,632.00
Mortgages and Ground Rents.............	96,678,051.47	Reserve on Supplementary Contracts..	5,063,185.00
Advances on Policies of this Company......	40,602,555.40	Reserve for Total and Permanent Disability Benefits........	2,773,287.00
Bonds at Amortized Values computed on the basis of State Laws..............	91,483,285.22	Advance Premiums and Miscellaneous Liabilities............	2,336,544.75
Stock at Market Value prescribed by Insurance Commissioners.	173,280.00	Death Claims awaiting Proof, etc..........	1,040,210.54
Cash................	515,374.98	Surplus to Policyholders apportioned but unpaid, including estimated amount for 1931..............	10,376,991.39
Accrued Interest......	3,538,620.67	Mortality and Disability Fluctuation Fund	8,901,899.00
Overdue Interest......	635,482.57	Asset Depreciation Fund.............	7,513,847.00
Deferred and Uncollected Net Premiums, etc...............	5,785,858.89	Reserve for other Contingencies.........	1,935,681.15
	$245,650,277.83		$245,650,277.83

FIGURE 7

Inventories of manufacturing supplies or office supplies are not current, in that they do not pass physically in commercially measurable quantities into the finished product or the merchandise to be sold. They are therefore most consistently classed as deferred assets.

Ordinarily, intangible assets are shown in the asset group in the balance sheet. The old Federal Reserve Board form of balance sheet, however, called for the subtraction of goodwill from net worth as shown by the books. The remainder is meant to be the value of tangible net worth. Such a presentation is admirable from the point of view of the credit analyst, but when goodwill has been paid for at a conservative valuation, it is a legitimate asset and may be treated as such.

It is obviously absurd to classify a deficit as an asset, yet this is done quite frequently, probably because of the tendency to think of the balance sheet as an account. The deficit is a decrease of the invested capital, and it should be presented as a deduction from net worth.

As other difficulties of arrangement and classification present themselves, thorough analyses of the items under consideration will usually solve the problems. In practice, when one is making a balance sheet, he ordinarily has access to such data as will enable him to classify every item correctly.

Balance Sheets of Non-profit Organizations.—Some corporations are not operated for profit, although even non-profit organizations may have stock issues. For example, many clubs require their members to purchase shares of stock, the proceeds being used to erect or to improve the clubhouse, or for some similar purpose. The balance sheet of such an organization would naturally show capital stock and either surplus or deficit; this is particularly true if the preferred stock is a sort of disguised bond issue with a contractual rate of dividend which is essentially like interest. On the other hand, some corporations which do an enormous business have no capital stock at all. The balance sheet of such an organization is presented in Figure 7. Since the Provident Mutual Life Insurance Company belongs entirely to its customers, the policyholders, the bulk of the surplus is apportioned to them. The first three items on the liabilities side of this statement, although called reserves, are really liabilities; the "Mortality and Disability Fluctuation Fund" is a reserve against the possibility of losses in excess of the expectation, and the "Asset Depreciation Fund" is a reserve against declines in the value of investments.

The Rockefeller Foundation is a fiduciary, holding funds in trust, but permitted to donate principal as well as income for the purposes of the grant. The balance sheet shows total assets of $214,993,367.42, of which $61,176,746.00 has been appropriated or set aside for specific grants and $4,725,947.78 has been set aside for making additional appropriations. The free net worth of this foundation is the Principal Fund, $142,675,978.13, plus the Unappropriated Balance of the Appropriations Account, $4,725,947.78. It will be noted that $6,000,000.00 has been taken from the Principal Fund as a Reserve for Con-

THE ROCKEFELLER FOUNDATION

BALANCE SHEET—DECEMBER 31, 1930

ASSETS		
I. Investments of Principal Funds		
Ledger valuation of all securities	$193,075,249.39	
Accrued income on securities paid for from principal	206,971.61	$193,282,221.00
Less amount belonging to Appropriation Funds (see below)		44,606,242.87
		$148,675,978.13
II. Land, Buildings and Equipment		
In New York	$ 48,363.56	
In Paris	68,000.00	
In China	298,331.95	$ 414,695.51
III. Appropriation Funds		
Ledger valuation of securities	$ 44,606,242.87	
Secured demand loans	13,100,000.00	
Cash on deposit	124,988.82	
Chase National Bank Certificate of Deposit	5,000,000.00	$ 62,831,231.69
Foreign currency		
Chase Nat'l Bank (London) Sterling		400.16
Funds in hands of agents to be accounted for, and sundry accounts receivable	$ 3,090,166.17	
Less accounts payable	19,104.24	3,071,061.93
		$ 65,902,693.78
Grand Total		$214,993,367.42
FUNDS AND OBLIGATIONS		
I. Principal Funds		
Principal Fund		$142,675,978.13
Reserve for contingent projects		6,000,000.00
		$148,675,978.13
II. Land, Buildings and Equipment Fund		
Appropriations from income		$ 414,695.51
III. Appropriation Funds		
Prior Obligations		
Unpaid appropriations	$ 17,047,267.95	
Unpaid pledges and authorizations	7,140,800.00	$ 24,188,067.95
Appropriations Account		
Unpaid appropriations	$ 26,560,678.05	
Unpaid pledges and authorizations	10,428,000.00	36,988,678.05
Total Obligations		$ 61,176,746.00
Unappropriated balance of Appropriations Account		[a]4,725,947.78
		$ 65,902,693.78
Grand Total		$214,993,367.42

[a] This available balance exists only because an authorization of $6,000,000, payable from principal to the extent that income proves insufficient, has been wholly charged against principal.

FIGURE 8

tingent Projects, of which a part, $1,274,052.22, had been appropriated at the date of the balance sheet. It should be noticed that these appropriations and pledges are quite unlike the ordinary type of liability, as they are promises to make gifts.

These two illustrations are but samples of the many variations possible in the preparation of balance sheets for non-profit organizations. Usually there is some account which represents the net worth, but this account may be called by a different name, such as "Surplus," "Fund," or "Net Worth." Special purposes or peculiar circumstances may induce rather wide departures from the usual forms for business statements.

Construction of the Balance Sheet.—The prevailing view among accountants of standing is that a balance sheet may be made only from double entry books. Double entry bookkeeping simplifies immensely the mechanics of making balance sheets because the closing of the books leaves open only the real accounts, in balance. Moreover, the closing is a check on the changes of net worth as revealed in successive statements. According to this view, an exhibit based upon anything other than double entry books may be a perfectly correct "statement of assets and liabilities," but it can never qualify as a balance sheet.

The problem may appear in connection with "single entry" books. When books are kept by single entry there are usually accounts with debtors and creditors, there is generally a cash book with separate sides for receipts and disbursements, and there may be a "day book" in which all non-cash transactions are recorded as they take place. From the day book and the cash book postings are made to the accounts of debtors and creditors. There may be elaboration of this simple procedure, but, no matter what additions are made, anything short of complete double entry must be classed as single entry. Many individuals have been able to devise single entry systems that met their personal needs, or the needs of organizations of which they have been treasurers. Occasionally accounts of businesses have been kept successfully by single entry. Yet single entry at its best fails to provide the check of the trial balance and of the complete closing into the real accounts which are in balance. Typically, single entry fails to provide most of the nominal accounts and many of the real accounts necessary to make the operating statements and the statement of assets and liabilities. The data have to be obtained by analyzing the day book and the cash book, by going over correspondence and old records, and by searching memories. The theory of making a statement of assets and liabilities from single entry books is simple. A complete list of the assets and liabilities must be made, using all the information that can be gleaned from the books and whatever other data can be obtained.

THE MODEL CORPORATION

Work Sheet, December 31, 1931

	Trial Balance		Adjustments		Manufacturing		Selling		Profit and Loss		Balance Sheet	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Cash on Hand	2,000.00										2,000.00	
Cash in Bank	173,000.00										173,000.00	
Notes Receivable	30,000.00										30,000.00	
Notes Receivable Discounted		10,000.00										10,000.00
Accounts Receivable	230,000.00										230,000.00	
Reserve for Bad Debts				(J) 10,000.00								10,000.00
Reserve for Discounts				(I) 3,000.00								3,000.00
Inventories, Dec. 31, 1930												
Raw Material	23,000.00				23,000.00							
Goods in Process	43,000.00				43,000.00							
Finished Goods	94,000.00						94,000.00					
Inventories, Dec. 31, 1931												
Raw Materials			(A) 28,000.00								28,000.00	
Goods in Process			(B) 48,000.00								48,000.00	
Finished Goods			(C) 82,000.00								82,000.00	
Accrued Interest Receivable			(O) 1,000.00								1,000.00	
Accrued Rents Receivable			(R) 1,000.00								1,000.00	
Liberty Bonds	25,000.00										25,000.00	
Advances to Officers	5,000.00										5,000.00	
Stock Subscription Notes	30,000.00										30,000.00	
Land	250,000.00										250,000.00	
Factory Building	350,000.00										350,000.00	
Reserve for Depreciation of B'ld'g.		80,000.00		(E) 10,000.00								90,000.00
Machinery & Equipment	350,000.00										350,000.00	
Reserve for Depreciation of Machinery & Equipment		50,000.00		(D) 20,000.00								70,000.00
Office Equipment	60,000.00										60,000.00	
Reserve for Depreciation of Office Equipment		12,000.00		(F) 6,000.00								18,000.00
Employees' Cottages	40,000.00										40,000.00	
Reserve for Depreciation of Cottages		6,000.00		(G) 4,000.00								10,000.00
Bond Discount & Expense	31,000.00			(N) 1,000.00							30,000.00	
Prepaid Interest Expense			(L) 1,000.00								1,000.00	
Prepaid Insurance			(K) 6,000.00								6,000.00	
Sinking Fund Investments	50,000.00										50,000.00	
Patents	20,000.00			(S) 1,000.00							19,000.00	
Notes Payable		50,000.00										50,000.00
Accounts Payable		61,000.00										61,000.00
Interest Accrued on Bonds				(N) 12,500.00								12,500.00
Accrued Federal Taxes				(P) 52,800.00								52,800.00
Accrued Interest Expense				(M) 500.00								500.00
Dividends Payable, Preferred				(T) 7,000.00								7,000.00
Dividends Payable, Common				(T) 30,000.00								30,000.00
Unearned Rents Received				(H) 3,000.00								3,000.00
5% Sinking Fund Bonds Payable		500,000.00										500,000.00
7% Cumulative Preferred Stock		300,000.00										300,000.00
Treasury Preferred Stock	100,000.00										100,000.00	
Common Stock		400,000.00										400,000.00
Unissued Common Stock	100,000.00										100,000.00	
Sinking Fund Reserve				(U) 50,000.00								50,000.00
Surplus		33,000.00	(T) 37,000.00 (U) 50,000.00								54,000.00	
Sales		2,468,000.00						2,468,000.00				
Sales Returns & Allowances	15,000.00						15,000.00					
Sales Discounts	25,000.00		(I) 3,000.00				28,000.00					
Salesmen's Salaries & Commissions	124,000.00								124,000.00			
Salesmen's Traveling Expense	68,000.00								68,000.00			
Advertising	102,000.00								102,000.00			
Administrative Salaries	88,000.00								88,000.00			
Office Salaries	26,000.00								26,000.00			
Stationery & Printing	35,000.00								35,000.00			
Depreciation of Office Equipment			(F) 6,000.00						6,000.00			
Miscellaneous Office Expense	14,000.00								14,000.00			
Interest Earned		14,000.00		(O) 1,000.00						15,000.00		
Rents of Employees' Cottages, Net		30,000.00	(G) 4,000.00 (H) 3,000.00	(R) 1,000.00						24,000.00		
Interest on Bonds	13,500.00		(N) 13,500.00						27,000.00			
Interest Expense	18,500.00		(M) 500.00	(L) 1,000.00					18,000.00			
Bad Debts	2,000.00		(J) 10,000.00						12,000.00			
Purchases of Raw Materials	568,000.00				568,000.00							

THE MODEL CORPORATION

WORK SHEET, DECEMBER 31, 1931 (*Continued*)

	Trial Balance		Adjustments		Manufacturing		Selling		Profit and Loss		Balance Sheet	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
In Freight & Cartage	15,000.00				15,000.00							
Import Duties	3,000.00				3,000.00							
Purchase Returns & Allowances		4,000.00				4,000.00						
Purchase Discounts		8,000.00				8,000.00						
Manufacturing Account:												
Raw Materials, Dec. 31, '31				(A) 28,000.00		28,000.00						
Goods in Process, Dec. 31, '31				(B) 48,000.00		48,000.00						
Direct Labor	762,000.00				762,000.00							
Indirect Labor	10,000.00				10,000.00							
Foremen's Wages	25,000.00				25,000.00							
Factory Supplies	38,000.00				38,000.00							
Heat, Light, & Power	21,000.00				21,000.00							
Repairs to Machinery & Equipment	12,000.00				12,000.00							
Depreciation of Machinery & Equipment			(D) 20,000.00		20,000.00							
Depreciation of Factory Building			(E) 10,000.00		10,000.00							
Miscellaneous Manufacturing Expenses	1,000.00		(S) 1,000.00		2,000.00							
Taxes	13,000.00				13,000.00							
Compensation Insurance	13,000.00			(K) 5,000.00	8,000.00							
Property Insurance	8,000.00			(K) 1,000.00	7,000.00							
Selling Account:												
Finished Goods Inv. Dec. 31, '31				(C) 82,000.00				82,000.00				
Cost of Manufacture to Selling						1,492,000.00	1,492,000.00					
Gross Profit to Profit & Loss							921,000.00			921,000.00		
Federal Taxes			(P) 52,800.00						52,800.00			
Net Profit, after Taxes, to Surplus									387,200.00			387,200.00
	4,026,000.00	4,026,000.00	377,800.00	377,800.00	1,580,000.00	1,580,000.00	2,550,000.00	2,550,000.00	960,000.00	960,000.00	2,065,000.00	2,065,000.00

N.B.: There is pending a suit against the Model Corporation for $25,000.00 damages. The Model Corporation expects to defend this suit successfully.

FIGURE 9

Often assets must be appraised. When these lists have been completed, the asset and liability sections of the statement may be constructed from the information obtained. The difference between the assets and the liabilities is the net worth. Simple as this process is in outline, a difficulty lies in the laboriousness of the search for data and in the uncertainty that all the assets and liabilities have been revealed.

When double entry books have been closed correctly only the real accounts are open, and a balance sheet can be constructed simply by copying the balances of the accounts on a proper form. Well arranged ledgers usually present the accounts in exactly the order they appear on the balance sheet, thus making the construction of the statement a very simple problem.

In practice, however, the balance sheet is seldom made directly from the general ledger. The accountant is more apt to take a trial balance either before the adjustments for the end of the period have been made or just after they have been posted. This trial balance is placed on a work sheet, which may be like the one in Figure 9.[1] If the trial balance was taken before the making of the adjusting entries in the journal, adjustments are placed upon the work sheet in the two columns adjacent to the trial balance. In case the books are to be closed, these entries on the work sheet are copied into the journal and then posted. On the work sheet itself, the amounts as shown by the trial balance and then modified by the adjustments are carried to the proper columns, headed Manufacturing, Selling, Profit and Loss, and Balance Sheet, or whatever may be appropriate. The balance of the Manufacturing column, which is the cost of manufacture, is then carried to the debit side of the Selling columns. After that, the balance of the Selling columns, or the gross profit on sales, is carried to the credit side of the Profit and Loss columns. Finally, the balance of the Profit and Loss columns is carried to the Balance Sheet columns to represent the addition to Surplus, if there was a gain, or the deduction therefrom, if there was a loss. From such a work sheet it is possible to draft the journal entries for closing the books as well as for adjusting them. It is also a simple task to construct the operating statements and the balance sheet. The balance sheet in Figure 1 was made from the data in Figure 9. By the use of the work sheet it is possible to make accurate statements for a business every month, even though the books are actually adjusted and closed only once a year. In practice, accounts are often so numerous, that the accountant uses four work sheets: one for the real accounts with debit balances, another for the real accounts with credit balances, a third for the nominal accounts with credit balances, and the last for the nominal accounts with debit balances. These four papers are used in the same manner as the one sheet in Figure 9.

---

[1] Explanation of Adjustments in Figure 9:

A. To set up inventory of raw materials, December 31, 1931.

B. To set up inventory of work in process, December 31, 1931.

C. To set up inventory of finished goods, December 31, 1931.

D. To record depreciation of machinery and equipment.

E. To record depreciation of factory building.

F. To record depreciation of office equipment.

G. To record depreciation on cottages of employees.

H. To set up deferred liability for unearned rent received.

I. To set up reserve for cash discounts still open to customers.

J. To set up adequate reserve for bad debts.

K. To set up prepaid insurance as a deferred asset.

L. To set up prepaid interest expense as a deferred asset.

M. To set up accrued interest expense as a liability.

N. To record accrued interest payable on bonds and amortization of bond discount.

O. To set up as an asset the accrued interest receivable.

P. To set up the liability for accrued federal taxes.

R. To set up the accrued rents receivable on employees' cottages.

S. To write down patents for expiration.

T. To set up dividends declared on common and preferred stock.

U. To set up sinking fund reserve out of surplus.

There are thus several sources of material for the balance sheet and the statement of assets and liabilities, namely, the ledger after the books have been closed, the accountant's work sheet based on a trial balance taken from the ledger, information from single entry books coupled with supplementary facts, and raw facts gathered from all available sources. However, only the first two of these sources, both dependent on double entry bookkeeping, are satisfactory.

Summary.—Every accounting statement should be characterized by clearness, completeness, accuracy, adherence to accepted forms and phraseology, and an attractive, enlightening layout.

A balance sheet is a classified statement of the assets, the liabilities, and the net worth of an organization at a particular time, based on double entry books.

In the balance sheet assets are best classified in six groups: current, fixed, deferred, investments, intangibles, and other assets. Liabilities are best divided into two groups, current and fixed, except that there may well be a class for deferred liabilities when there are such obligations extending over considerable periods.

In the balance sheets of sole proprietors and of partnerships, net worth is presented in the form of a capital account for each owner, occasionally supplemented by personal accounts and loan accounts in the case of the partnerships; in stock corporations, in joint stock companies, and in business trusts, net worth is presented as capital stock and surplus, including reserves from surplus, or as capital stock and

deficit; in non-stock corporations and in unincorporated societies net worth may be called "net worth" or some equivalent term.

The problem of marshaling or arranging the balance sheet items in sequence has given rise to statements in the account form, the report form, the double account form, and the comparative form. The question as to whether current or fixed items should be presented first is of less importance than that of consistency in the order of presenting assets and liabilities. All net worth items should be placed together.

All the actual assets and liabilities should be shown on the balance sheet. Among the liabilities are contingent liabilities, obligations arising out of purchase commitments, and the personal obligations of a sole proprietor which may result in claims against his business assets. It is wise, by creating reserves or by appending footnotes, to take cognizance in the balance sheet of expected losses which have not yet been realized. Liabilities should never be offset against assets.

Difficulties of classification may be solved by analysis of the individual items involved.

Although it is possible to make statements of assets and liabilities from single entry books and supplementary information, the only satisfactory source of data for the statements is a set of double entry books.

The form of the balance sheet must be adapted to the type of organization whose condition is set forth, and to the uses to which the statement is to be put.

When all matters of form have been settled, the value of a balance sheet depends upon the accuracy of the data from which it has been constructed.

QUESTIONS

1. Secure the statement of a national bank and compare it with the forms submitted in this chapter. Account for the differences you note.
2. Discuss the relation of the balance sheet to the trial balance.
3. Would it be possible to construct a balance sheet, every item of which was true but which, as a whole, misrepresented the condition of the business?
4. Make as complete a list as you can of synonyms for each of the following terms: current assets, fixed assets, deferred assets, current liabilities, fixed liabilities.
5. Is it correct to call capital stock a liability?
6. One accountant has called the balance sheet "a statement of opinion." Do you agree with him?
7. How would you classify in a balance sheet: premium on bonds payable; premium on bonds owned; discount on capital stock; premium on capital stock; bonds payable which have been purchased by the issuer but

not canceled; discount on bonds owned; a reserve set up out of profits to guarantee the product; forfeited stock; organization expense?

8. Select one of the balance sheets used as illustrations in this chapter and criticize it on the basis of the principles advocated by the author. See what justification, if any, you can find for the departure from the principles in the text.
9. Point out the differences between the balance sheet of a society, such as a church, an athletic club, or a Y.M.C.A., and that of a trading company.
10. Your firm has sold some goods to Mr. A. The articles have been set aside, wrapped, and addressed to him, and he has been billed for them and has made a part payment on the invoice, but he has asked you to hold the goods a few days until he is ready to receive them. Would you show these articles in the balance sheet? If your answer is "yes," how would you classify them?

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CHAPTER II

THE CONSTRUCTION OF STATEMENTS OF OPERATION

Statement of the Cost of Manufacture and of Sales.—The importance of the balance sheet as the gauge of the condition of a business can hardly be overemphasized. It must be remembered, however, that the reason for having an agglomeration of assets, the reason for incurring liabilities, the reason for the very existence of the business unit is the making of profit for the owners. The periodic announcements of earnings are eagerly awaited by the investing public, and are promptly reflected on the stock exchange. Statements of operation, therefore, should be prepared with just as much attention to arrangement, content, and accuracy as are balance sheets.

Since the process of fabrication in most cases precedes that of merchandising, it is logical that the first statement of operation to be discussed should be the one depicting manufacture. There are three elements in the cost of manufacture:

1. Direct materials, or materials which are worked upon and which eventually form parts of the final product;
2. Direct labor, or labor which immediately changes the size, form, or color of the materials which eventually become the final product;
3. Manufacturing expense, or the sum of the other costs necessary to achieve the final product. Among the usual items in manufacturing expense are: indirect labor, including superintendence, work in the factory office, work in the power plant, work of repair men, janitors, truckers, etc.; supplies or indirect materials, such as fuel, lubricants, abrasives, and other material things which are necessary in manufacture but which lose their identity in effecting the final product; rent and other costs of maintaining the building or factory quarters; depreciation of machinery, tools, equipment, and owned buildings; expiration of patents which protect the product manufactured or royalties paid for the privilege of using patents; property taxes assessed against the materials, the real estate, and any of the equipment of the factory, or any taxes measured by output as distinguished from sales or income; insurance on property in the factory or against the hazards of manufacturing, like fire insurance, boiler explosion insurance, liability or com-

pensation insurance; heat, light, and power, and other services; and many other items which are part of the totality of manufacturing costs.

Thus the formula for the cost of manufacture could be written:

Cost of Manufacture = Direct Material + Direct Labor + Manufacturing Expense

While this formula is perfectly true to facts, its application is complicated by the existence of goods in process at the time the manufacturing period begins, and goods in process at the close. The effect of this work in process upon the three elements of cost to manufacture might be illustrated as follows:

1. Direct Material = Material in Process at beginning of period + Material Issued during period — Material in Process at close of period.
2. Direct Labor = Labor in Process at beginning of period + Labor Expended during period — Labor in Process at close of period.
3. Manufacturing Expense = Manufacturing Expense in Process at beginning of period + Manufacturing Expense Incurred during period — Manufacturing Expense in Process at close of period.

In this way the formula for the cost of manufacture must take account of nine different values. These can be combined by a regrouping process, thus:

Cost of Manufacture = Work in Process at beginning of period + Direct Material Issued during period + Direct Labor during period + Manufacturing Expense Incurred during period — Work in Process at close of period.

On this formula Figure 12 is patterned. Figures 10 and 11, however, follow the variation of the same formula which is more commonly used, namely:

Cost of Manufacture = Direct Material Issued during period + Direct Labor during period + Manufacturing Expense Incurred during period + (Work in Process at beginning of period — Work in Process at close of period).

This final formula is perfectly adequate as a pattern for the manufacturing statement. It is frequently modified, as in Figures 10 and 11, by adding the Inventory of Finished Goods at the beginning of the period less the Inventory of Finished Goods at the close of the period.

THE MODEL CORPORATION
STATEMENT OF COST OF MANUFACTURE AND OF SALES
January 1 to December 31, 1931

				Per Cent of Cost of Manufacture
Cost of Raw Materials				
Inventory of Raw Materials January 1		$ 23,000.00		
Purchases of Raw Materials		568,000.00		
In Freight and Cartage		15,000.00		
Import Duties		3,000.00		
		$609,000.00		
Less:				
Purchase Returns and Allowances	$ 4,000.00			
Purchase Discounts	8,000.00			
Inventory of Raw Materials December 31	28,000.00	40,000.00		
			$ 569,000.00	38.14
Direct Labor			762,000.00	51.07
Factory Expenses				
Indirect Labor		$ 10,000.00		
Foremen's Wages		25,000.00		
Factory Supplies		38,000.00		
Heat, Light, and Power		21,000.00		
Repairs to Machinery and Equipment		12,000.00		
Depreciation of Machinery and Equipment		20,000.00		
Depreciation of Factory Building		10,000.00		
Miscellaneous Manufacturing Expenses		2,000.00		
Taxes		13,000.00		
Compensation Insurance		8,000.00		
Property Insurance		7,000.00	166,000.00	11.13
			$1,497,000.00	100.34
Deduct: Increase of Inventory of Goods in Process				
Goods in Process December 31		$ 48,000.00		
Goods in Process January 1		43,000.00	5,000.00	.34
Cost of Manufacture			$1,492,000.00	100.00
Add: Decrease of Inventory of Finished Goods				
Finished Goods January 1		$ 94,000.00		
Finished Goods December 31		82,000.00	12,000.00	
Cost of Sales			$1,504,000.00	

FIGURE 10

This modification makes a framework for the statement of Cost of Manufacture and of Sales.

The outline of the manufacturing statement is so simple that there is no necessity for extended discussion of the form. Some of the items, however, demand clarification. In Figure 10 the cost of the raw materials issued is worked out in detail on the face of the statement, while in Figures 11 and 12 merely the net cost of materials issued is shown. Of course the raw materials of one industry may be the finished product of another. In case both raw materials and partly finished goods are issued from stock to be fabricated it is more accurate to use the word "materials" without the qualifying word "raw." This has been done in Figure 11.

THE MODEL CORPORATION
Statement of Cost of Manufacture and of Sales
January 1 to December 31, 1931

			Per Cent of Cost of Manufacture
Materials		$ 569,000.00	38.14
Direct Labor		762,000.00	51.07
Factory Expense			
Indirect Labor	$10,000.00		
Foremen's Wages	25,000.00		
Factory Supplies	38,000.00		
Heat, Light, and Power	21,000.00		
Repairs to Machinery and Equipment	12,000.00		
Depreciation of Machinery and Equipment	20,000.00		
Depreciation of Factory Building	10,000.00		
Miscellaneous Manufacturing Expenses	2,000.00		
Taxes	13,000.00		
Compensation Insurance	8,000.00		
Property Insurance	7,000.00	166,000.00	11.13
		$1,497,000.00	100.34
Deduct: Increase of Inventory of Goods in Process			
Goods in Process December 31	$48,000.00		
Goods in Process January 1	43,000.00	5,000.00	.34
Cost of Manufacture		$1,492,000.00	100.00
Add: Decrease of Inventory of Finished Goods			
Finished Goods January 1	$94,000.00		
Finished Goods December 31	82,000.00	12,000.00	
Cost of Sales		$1,504,000.00	

Figure 11

The deduction of purchase discounts from the total to be accounted for in arriving at the cost of materials is a moot point. It is often argued that the ability to take advantage of a purchase discount is a matter of having a sufficient capital or the provision of funds by the financial management. In either case a purchase discount should be considered a financial income, as it was by the accountants who drew up the income statement of the Packard Motor Car Company, Figure 18. On the other hand, it is contended that if materials or merchandise can be purchased subject to a discount for prompt payment, their real value is the invoice price net of the cash discount. This net

THE MODEL CORPORATION
Statement of Cost of Manufacture
January 1 to December 31, 1931

		Per Cent of Cost of Manufacture
Cost of Raw Materials	$ 569,000.00	38.14
Direct Labor	762,000.00	51.07
Factory Expense	166,000.00	11.13
	$1,497,000.00	100.34
Add: Inventory of Goods in Process January 1	43,000.00	2.88
	$1,540,000.00	103.22
Less: Inventory of Goods in Process December 31	48,000.00	3.22
Cost of Manufacture	$1,492,000.00	100.00

Figure 12

THE MODEL CORPORATION
Schedule of Factory Expenses
January 1 to December 31, 1931

		Per Cent of	
		Factory Expense	Cost of Manufacture
Indirect Labor	$ 10,000.00	6.02	.67
Foremen's Wages	25,000.00	15.06	1.68
Factory Supplies	21,000.00	12.65	1.41
Heat, Light, and Power	38,000.00	22.89	2.55
Repairs to Machinery and Equipment	12,000.00	7.23	.80
Depreciation of Machinery and Equipment	20,000.00	12.05	1.34
Depreciation of Factory Building	10,000.00	6.02	.67
Miscellaneous Factory Expense	2,000.00	1.21	.13
Taxes	13,000.00	7.83	.87
Compensation Insurance	8,000.00	4.82	.54
Property Insurance	7,000.00	4.22	.47
Total	$166,000.00	100.00	11.13

Figure 13

THE MODEL CORPORATION
Statement of Profit and Loss
January 1 to December 31, 1931

				Per Cent of Net Sales
Sales		$2,468,000.00		
Less: Sales Returns and Allowances	$15,000.00			
Sales Discounts	28,000.00	43,000.00		
Net Sales			$2,425,000.00	100.00
Cost of Sales (per statement of cost of manufacture and of sales)			1,504,000.00	62.02
Gross profit on sales			$ 921,000.00	37.98
Deduct:				
Selling and General Expense				
Salesmen's Salaries and Commissions		$ 124,000.00		
Salesmen's Traveling Expenses		68,000.00		
Advertising		102,000.00		
Administrative Salaries		88,000.00		
Office Salaries		26,000.00		
Stationery and Printing		35,000.00		
Depreciation of Office Equipment		6,000.00		
Miscellaneous Office Expenses		14,000.00	463,000.00	19.09
			$ 458,000.00	18.89
Other Income				
Interest Earned		$ 15,000.00		
Rents of Employees' Cottages, net		24,000.00	39,000.00	1.61
			$ 497,000.00	20.50
Other Expense				
Interest on Bonds		$ 27,000.00		
Interest Expense		18,000.00		
Bad Debts		12,000.00	57,000.00	2.35
Net Profit before Federal Income Taxes			$ 440,000.00	18.15
Deduct Income Taxes			52,800.00	2.18
Net Profit			$ 387,200.00	15.97

Figure 14

price, then, is all that should be charged to cost of manufacture—or to cost of sales. If the company fails to take advantage of the discount privilege, the fault lies with the financial management, who should be charged with "Discounts Lost," rather than with the manufacturing or purchasing authorities. Between these two lines of reasoning there is little choice, for each is logical. If the second theory is adopted, the inventories must be valued net of the discounts, sales discounts must be treated as deductions from sales, and provision must be made for open discounts which may be taken by customers or from creditors. One should be consistent in his treatment of cash discounts throughout the entire accounting system and in all the statements prepared for the same organization.

If it is desired to charge to cost of sales or to cost of manufacture the merchandise or the material purchased at the invoice price net of the cash discount, the entry when the goods are received may be in the form:

Purchases (or Inventory of ————)	$980.00	
Purchase Discounts Open	20.00	
Accounts Payable (or Audited Vouchers)		$1,000.00
To record purchase of ————, invoice price $1,000.00; terms 2% off in 10 days, net 90 days.		

Instead of Purchase Discounts Open, the account may be given another name, such as Purchase Discounts Credited to Cost. When the invoice is paid within the discount period the entry is:

Accounts Payable (or Audited Vouchers)	$1,000.00	
Cash		$980.00
Purchase Discounts Open		20.00

If, however, the debt is allowed to run beyond the time limit for the discount, payment will involve two entries, such as:

Accounts Payable (or Audited Vouchers)	$1,000.00	
Cash		$1,000.00
Purchase Discounts Lost	20.00	
Purchase Discounts Open		20.00

By this method the acquisitions are always entered net of purchase discounts, the discounts lost are recorded in a manner to be shown as a financial expense on the profit and loss statement, and the account Purchase Discounts Open can be treated as a valuation of Accounts Payable, provided there is justifiable expectation that the discounts will be taken. This treatment of the purchase discounts is permissible only for those concerns which have a well established practice of accepting all, or practically all, of the available opportunities for such discounts. If this plan is adopted, as a matter of consistency, a reserve for open sales discounts should be set up when the books are closed, as illustrated in the Work Sheet, Balance Sheet, and Profit and Loss Statement of The Model Corporation, Figures 9, 1, and 14. On the other hand, it should not be forgotten that the older method of treating all cash discounts as financial items to be recognized on the books only as they are taken is logical, well established, and simple.

It is sometimes difficult to differentiate between direct materials and manufacturing supplies. The distinction must be made with regard to the actual case in point on the principle that whatever is incorporated in the final product in tangible form and in commercially measurable quantity is direct material. Indirect material or factory supplies are classed among the manufacturing expenses. Much of this indirect material, like fuel and lubricants, is of such a nature that none of it is physically embodied in the final product. Other items, like glue, may enter the product in material form, but in unit quantities so small as not to be worth the cost of measuring.

Some items among the factory expenses are apt to give trouble. Insurance may be carried on an entire plant. If there are not separate policies covering the furniture of the administrative office, the finished goods warehouse and stock, and the factory stores and equipment, the premiums will have to be prorated among general expense, selling expense, and manufacturing expense on the basis of the values of the properties covered in the several departments. In practice, however, one often finds different policies at different premium rates with specific coverages. Thus the distribution of the insurance item is facilitated. Even in such cases, close attention must be given to each policy to distinguish the expired from the prepaid portions of the premiums.

Taxes are another potential source of trouble. General property taxes are assessed at a percentage of values. It is therefore necessary to distribute the general property taxes for the period, after allowing for accruals, on the basis of the average values of the taxable property during the period in the several departments. Values at the time of assessment may well be used instead of the averages for the period. Income taxes and capital stock taxes, being financial items, have no place in the manufacturing statement; they belong in the closing section of the statement of profit and loss. Taxes based on the number of units sold, or on their value, are selling expenses, and should appear in the statement of profit and loss. Taxes on raw materials, whether import duties or internal revenue levies, are properly considered part of the manufacturing expense. It therefore appears that, before making up a work sheet and the operating statements, one should analyze the taxes paid or accrued and distribute them according to their nature and the base upon which they are assessed.

When royalties are paid for the use of patented machinery or processes or for the privilege of manufacturing articles protected by patents or by copyrights, these payments are part of the expense of manufacture. Similarly, the allowance for expiration of a patent owned is a manufacturing expense. If, however, royalties are paid on the basis of value or of volume of sales, such stipends are properly selling expenses. Analogous reasoning applies to packing expenses. If, as they

THE SAFETY SALES COMPANY
OPERATING STATEMENT
January 1 to December 31, 1931

Net Sales		$250,000.00	100.00%
Cost of Sales		131,000.00	52.40%
Gross Profit on Sales		$119,000.00	47.60%
Deduct:			
Selling Expenses	$58,000.00		23.20%
General Expenses	46,000.00		18.40%
		104,000.00	41.60%
		$ 15,000.00	6.00%
Add: Other Income		7,000.00	2.80%
		$ 22,000.00	8.80%
Deduct: Other Expense		8,000.00	3.20%
Surplus Net Profits		$ 14,000.00	5.60%

FIGURE 15

THE SAFETY SALES COMPANY
SCHEDULE OF SELLING EXPENSES
January 1 to December 31, 1931

		Per Cent Selling Expenses	Per Cent Net Sales
Sales Salaries	$36,000.00	62.07	14.40
Advertising	13,000.00	22.41	5.20
Delivery Expense	9,000.00	15.52	3.60
	$58,000.00	100.00	23.20

FIGURE 16

THE SAFETY SALES COMPANY
SCHEDULE OF GENERAL EXPENSES
January 1 to December 31, 1931

		Per Cent General Expenses	Per Cent Net Sales
Executive Salaries	$12,000.00	26.09	4.80
Office Salaries	14,000.00	30.43	5.60
Rent	12,000.00	26.09	4.80
Store Upkeep	6,000.00	13.04	2.40
Miscellaneous Expense	2,000.00	4.35	.80
	$46,000.00	100.00	18.40

FIGURE 17

are made, products are placed in containers as part of the manufacturing process, as is the case with canned goods, patent medicines, and electric light bulbs, the packing cost is part of the cost of manufacture. On the other hand, the packing and wrapping done after the receipt of orders in preparing specific shipments is usually considered a selling expense and is therefore not placed in the manufacturing statement.

The cost of maintaining the owned buildings or parts of owned buildings in which fabrication is carried on, together with reasonable allowance for depreciation of these structures, is properly a manufacturing expense. Likewise the rent and irrecoverable maintenance expenditures on hired quarters is a manufacturing expense in so far as the space is used as a factory. It is sometimes the practice to charge to manufacturing in owned quarters a sum equal to the hire of similar space from an outsider, calling the item "rent." When such a charge is made on the books, there must be a credit to an income account, Rent Earned. Against this Rent Earned account should be charged the maintenance and depreciation of the property. It would appear that this practice balances an imaginary expense with an imaginary income, to the extent of the balance in the Rent Earned account after deducting maintenance and depreciation. For that reason the weight of accounting authority seems committed to the view that the manufacturing accounts should be charged with the actual occupancy costs of owned buildings but with no more. A saving is not an income.

Parallel reasoning applies to the inclusion, in the cost of manufacture, of interest on the value of an owned plant. The debit to a manufacturing expense account would have to be counterbalanced by a credit to an interest income account, even though no interest money had changed hands. As long as accounting is conducted to record and reflect actual facts, such an entry seems unjustified. The best practice appears to be the inclusion of interest actually paid or accrued among the financial expenses in the statement of profit and loss, thus excluding interest entirely from the manufacturing accounts and statements. The owner or manager can compare his net profit with interest at the competitive rate on the net investment in the business to ascertain whether or not the enterprise is a paying venture.

Of course it is a fact that one investing in a factory foregoes the alternative of purchasing a safe bond which will yield interest. In this sense, imputed interest on the value of a plant may be considered a cost and may be included in manufacturing statements drawn for comparative and statistical purposes. However, the construction of such comparative statements may be accomplished without entering imputed interest on the books. The Income Tax Regulations provide that "Interest calculated for cost-keeping or other purposes on account of

PACKARD MOTOR CAR COMPANY
AND SUBSIDIARY COMPANIES

INCOME ACCOUNT
for the Year Ended December 31, 1930

PARTICULARS		AMOUNT
FACTORY SALES:		
Carriages, Service Parts, Marine and Aviation Engines		$57,690,021.42
Deduct—Cost of Sales		42,134,783.25
Gross Profit		$15,555,238.17
Add—Other Income:		
Discount on Purchases	$ 200,501.26	
Rentals	179,843.74	
Interest Earned	603,442.81	
Miscellaneous	975.26	$ 984,763.07
TOTAL GROSS PROFIT AND OTHER INCOME:		$16,540,001.24
Deduct—Selling, General and Administrative Expenses		3,310,965.06
Profit Before Deducting Factory Depreciation and Provision for Federal Income Tax		$13,229,036.18
Deduct:		
Depreciation of Factory Properties	$ 3,002,673.20	
Provision for Federal Income Tax	1,215,610.29	
To Reserve for General Purposes	750,000.00	$ 4,968,283.49
NET PROFIT FROM FACTORY OPERATIONS		$ 8,260,752.69
NET PROFIT FROM OPERATIONS OF BRANCHES AND SUBSIDIARY COMPANIES		773,466.84
PROFIT FOR THE YEAR ENDED DECEMBER 31, 1930		$ 9,034,219.53

FIGURE 18

capital or surplus invested in the business which does not represent a charge arising under an interest-bearing obligation, is not an allowable deduction from gross income," and that in valuing inventories cost may not include "any cost of selling or return on capital, whether by way of interest or profit." Probably the fairest conclusion is that the weight of accounting authority is against the inclusion of any interest at all in the cost of manufacture; that no entries should be made on the books for interest that has not been paid or accrued, but that interest paid or accrued should be considered a financial expense, and that if imputed interest is included in operating statements made for comparative or statistical purposes the fact of imputation should be indicated clearly. The most profitable comparison appears to be between net accounting profit and a reasonable per cent of net worth.

Although most of the disputed or difficult points have been touched, other questions may arise as to what should be included in the statement of the cost of manufacture. Each of these problems will yield to analysis. The fundamental principle is that the cost of manufacture includes every expense actually paid or incurred in the procurement of material and in the transformation of that material into the final products, and nothing else.

Figures 10 and 11 are statements of the cost of manufacture and of sales, constructed from the data on the work sheet of The Model Corporation as shown in Figure 9. It will be noticed that the basis of the percentages is the cost of manufacture. These percentages are very useful in comparing statements for different periods or for different organizations. In Figure 12 a much condensed statement is presented, capable of being printed in a minimum of space. This exhibit would be supplemented, in a report to officers or directors, by a schedule of factory expenses similar to Figure 13. In Figure 13 the percentages have been calculated, first, on the basis of total factory expense and, second, on the basis of the cost of manufacture. Such computations facilitate comparisons more detailed than those usually based on statements in the form of Figures 10 and 11. As in the case of the balance sheet, the amount of condensation desirable depends upon the purpose of the statement, responsible officials requiring far more detail than the general public or even the stockholders.

It is impossible to make an accurate statement of the cost of manufacture without a method of cost accounting well enough developed to furnish correct inventories of work in process. A system capable of furnishing such inventories will give directly the cost of sales and a considerable amount of other useful information. In the absence of proper methods of cost accounting, it is necessary to estimate the value of work in process before adjusting the books or preparing

the statements. A physical inventory will reveal the cost of the materials in process. To this sum it is necessary to add estimates of the direct labor and of the factory expense. Such estimates, however, are never as reliable as the results of careful cost accounting. Some of the methods of valuing goods in process are considered in Chapters III and XVII.

FORM OF PROFIT AND LOSS STATEMENT RECOMMENDED BY THE FEDERAL RESERVE BOARD

Gross sales..
Less outward freight, allowances and returns..........................
Net sales...
Inventory beginning of year..
Purchases, net (or cost of goods produced).............................
Less inventory end of year...
Cost of sales...
Gross profit on sales..
Selling expenses (itemized to correspond with ledger accounts kept).......
Total selling expenses...
General expenses (itemized to correspond with ledger accounts kept)......
Total general expenses...
Administrative expenses (itemized to correspond with ledger accounts kept)
Total administrative expenses.....................................
Total expenses..
Net profit on sales..
Other income:
Income from investments...
Interest on notes receivable, etc...................................
Gross income...
Deductions from income:
Interest on bonded debt...
Interest on notes payable..
Taxes, depreciation, etc. (separately shown)..........................
Total deductions..
Net income for the period...
Add special credits to profit and loss (separately shown)................
Deduct special charges to profit and loss (separately shown).............
Profit and loss for period...
Surplus beginning of period...
Add or deduct items in the surplus account attributable to prior periods...
Dividends paid...
Earned surplus at end of period...................................

If a profit and loss statement is prepared for more than one year it should be set up in comparative form.

FIGURE 19

A statement of the cost of manufacture and of sales should be in such form as to present the various items clearly and in proper relations to each other. It should include those items which are actually manufacturing costs, and nothing else. Each item should be accurately valued, general accounts like taxes and insurance being prorated carefully. Precaution is necessary to see that the proper adjustments have been made for depreciation of fixed assets, for expiration of patents, for accruals of royalties, and for the shrinkage of prepayments. The inventories should be valued with the utmost care.

The Statement of Profit and Loss.—In a manufacturing business the statement of profit and loss could well follow the form of Figure 14 for The Model Corporation. This statement is based on the material in the Work Sheet, Figure 9. Since purchase discounts were considered a reduction of the cost of the materials used in manufacture, Figure 10, it is only logical that in the statement of profit and loss the discounts to customers should be deducted from sales to arrive at net sales. If, however, the manufacturing statement had shown the purchases gross of cash discounts, then the statement of profit and loss would have presented these sales discounts as other expense items and the purchase discounts among the other incomes.

In the trading section of the profit and loss statement of the manufacturing company, it is well to use merely the net amount for cost of sales taken from the statement of cost of manufacture and of sales, as is done in Figure 14. This is done on the principle that there should be no unnecessary repetition of similar data in a set of related statements. On the other hand, the cost of sales might be worked out in a manner parallel to that in Figure 19, which is designed for a trading business. The form for the manufacturing business which also buys some merchandise for sale might be:

Cost of Sales

	Manufactured Stock	Purchased Stock	Totals
Inventory, January 1	$ 15,000.00	$10,000.00	$ 25,000.00
Cost of Manufacture	100,000.00		100,000.00
Purchases		30,000.00	30,000.00
Totals	$115,000.00	$40,000.00	$155,000.00
Less: Inventory, June 30	12,000.00	6,000.00	18,000.00
Cost of Sales	$103,000.00	$34,000.00	$137,000.00

There seems to be no question of the desirability of deducting sales returns and sales allowances from gross sales to obtain the net sales in the first section of the statement of profit and loss. The form furnished by the Federal Reserve Board also deducts the freight out on sales. The theory seems to be that the payment of freight out is a concession to the customer which lowers his cost of acquisition, a concession made in lieu of a price cut; hence, transportation out to customers is considered as virtually a lessening of the sales. The same reasoning would hold if the goods were billed at sales price, the merchandise shipped collect, and the customer allowed to deduct the shipping charges in making his remittance. There is no doubt that the cost of delivery is generally placed on the buyer, and that assumption of this cost by the seller is a lessening of his return. However, if every expense that decreases the income from trading should be considered a deduction from sales, items like advertising and salesmen's salaries and commissions would be proper deductions before reaching net sales. This would be so absurd that it seems better, on the whole, to consider all these items, including transportation out, as selling expenses.

The trading section of the statement is concluded by the item called Gross Profit on Sales or Gross Trading Profit. Some statements of operation begin with this figure in order to conceal from competitors the volume of business done and the margin between selling prices and costs. This type of condensation is intolerable in reports to managers, directors, and owners.

From the gross profit on sales should be deducted the total of three groups of expenses: the selling expenses, the general expenses, and the administrative expenses. These three groups may be deducted separately if desired; however, the distinction between general expenses and administrative expenses is so nebulous that these two groups are often combined, as in Figure 15. Occasionally one finds all three groups presented under one heading, as in Figures 14 and 18. These classes comprise the ordinary expenses of carrying on operations. Under the head of selling expenses would fall salesmen's salaries, salesmen's commissions, salesmen's traveling expenses, advertising, publicity, market analysis, development of new uses for products, costs of delivery and packing for delivery, royalties and taxes based on any measure of sales volume, and apportioned amounts of such items as have to be distributed, as rent, property taxes, building upkeep and depreciation, and insurance. In some organizations there are other selling expenses, such as warehouse charges, insurance of delivery, and consular visés. In short, selling expense should include every outlay which has for its direct object the increase of sales, the delivery of merchandise to the purchaser, or the adjusting of the articles after delivery. It is sometimes held that losses on bad debts are selling expenses because the granting of credit is for the purpose of increasing sales. This argument may be valid in case the sales department passes on credits, but the best-organized businesses have independent credit departments and they should consider the bad debts as a financial expense.

Administrative expenses are the costs of keeping the business organization operating as a unit. They include outlays for general supervision, such as the salaries of general officers and their assistants and clerks, the building charges apportioned to the space occupied by the administrative division, the cost of the supplies and services required by this section, and kindred expenditures. General expenses are likewise incurred for the business as a whole, but not for the general supervision. They frequently include stationery and printing, rent and upkeep of the building, costs of services used by all or by several departments, and miscellaneous items. The very lack of precision in this paragraph is an illustration of the difficulty of separating general from administrative expenses. It has become good form to combine these groups as "general and administrative expenses." When the differentiation is made, it is largely a matter of judgment in the light of specific circumstances.

The deduction of these selling, general, and administrative expenses from gross profit on sales leaves the operating profit. Before the net profit can be obtained it is necessary to modify this operating profit by other income and other expenses, that is, by the expense and income which are outside of the operation of the business as a merchandising venture. Among the items of other income may be listed interest earned, dividends on stocks owned, purchase discounts (unless deducted from purchases), profits on the disposal of fixed assets, profits on the sale of investments, income from extraneous operations (such as renting homes to employees), recovery on debts formerly charged off as bad, and other items which are peculiar to particular lines of business. To illustrate these other items, there might be mentioned the receipts of a street railway company from the operation of an amusement park owned by it, the profit of the alteration department of a clothing store, the returns from the sale of dirt excavated from a cellar by a contractor, or the returns of a transportation company from the hiring out of concessions for news stands and lunch counters. Sometimes it is possible to divide this other income into financial and extraneous income, but in other cases the division may seem pedantic.

Other expenses include financial items, like sales discounts (unless they have been subtracted from sales), interest on current borrowings and on funded debt, collection and exchange, capital stock taxes and franchise taxes, and bad debts. Aside from the financial items, other expenses may include a wide variety of extraneous losses, such as fire or tornado losses, losses on the sale of fixed assets or investments, losses due to adverse judgments at law or to settlement of claims, and those from non-operating enterprises, such as restaurants or stores for employees. Figures 14, 20, and 21 illustrate the handling of other expenses and other incomes on statements.

According to the theory of the law, the federal income tax is the share of the net profit of a business organization that belongs to the United States government. If this theory is accepted, the proper place for the income tax on the statement of profit and loss is as a deduction

The New York Telephone Company

DESCRIPTIVE INCOME STATEMENT

Year Ended December 31, 1930

Telephone Operating Revenues . . . . Revenues from local and toll service, telephone directory advertising and miscellaneous telephone operations.		$213,693,527.57
Telephone Operating Expenses:		
Operation Expenses . . . . Cost of operating the telephone property, including operators' wages and other expenses of handling messages, billing and collecting subscribers' accounts, directories, sickness, accident and death benefits, pensions, and other expenses of operation.	$83,530,693.11	
Current Maintenance . . . . Cost of inspection, repairs and rearrangements required to keep the telephone plant and equipment in good operating condition.	39,811,366.91	
Depreciation . . . . Provision to meet loss of investment when telephone property is retired from service, based on rates of depreciation which spread this loss uniformly over the service life of the property.	31,303,824.07	154,645,884.09
NET TELEPHONE OPERATING REVENUE		59,047,643.48
Uncollectible Operating Revenues . . . . The estimated portion of revenues earned which, based on experience, cannot be collected.		1,653,084.63
Taxes Assignable to Operations . . . . Federal, state and local taxes applicable to the year.		13,673,507.46
OPERATING INCOME		43,721,051.39
Net Nonoperating Income . . . . Dividends and interest received from investments, interest on bank balances, rent revenues and other miscellaneous nonoperating revenues, less expenses incident thereto.		4,083,174.93
GROSS INCOME		47,804,226.32
Rent and Miscellaneous Deductions . . . . Rent paid for the use of buildings, offices, poles and conduits not owned by the company and charges for amortizing the cost of right of way.		6,333,876.82
Bond Interest . . . . Interest applicable to the year on outstanding bonds.		6,925,716.59
Other Interest . . . . Interest applicable to the year on other obligations of the company.		3,853,810.41
Debt Discount and Expense . . . . The proportion of debt discount and expense connected with outstanding bond issues applicable to the year.		211,794.38
BALANCE NET INCOME		30,479,028.12
Dividend Appropriations of Income:		
Preferred Stock Dividends (6½% per annum) .	$ 1,625,000.00	
Common Stock Dividends (8% per annum) . . Dividends on outstanding preferred and common stock.	24,335,000.00	25,960,000.00
BALANCE FOR CORPORATE SURPLUS . . . . The amount of undivided profits for the year transferred to surplus.		$ 4,519,028.12

FIGURE 20

from net profit, as in Figure 14. There is no question, however, but that the income tax is an expense to the business in the proper sense of the word; the government does not receive what can be called an owner's share.

In many statements of profit and loss there is incorporated a final section to show the disposition of the profit, as in Figures 19, 20 and 21. While it is not an essential part of the exhibit, such information is often highly interesting to stockholders and to potential investors.

Construction of the Statement of Profit and Loss.—There are two acceptable sources of information for making up the statement of profit and loss: the adjusted books or a trial balance drawn from them, and a work sheet similar to Figure 9. In most cases the statement is most easily prepared from the work sheet, as was Figure 14. In preparing either the work sheet or the adjusting entries for the books there are several dangers to be avoided. In the first place, all accruals of expenses and income should be considered, because failure to adjust for these items entails an inaccurate statement. Accruals of interest on bond issues or of factory wages are frequently large in amount. Similarly, adjustments should be made for all deferred items. While the deferments are not ordinarily large, they may be, particularly if a bond issue has been sold at a discount which must be amortized.

Another type of adjustment that must be made without fail is that for depreciation or depletion, allowance for bad debts, and expiration of patents or copyrights. Failure to make such allowances distorts both the balance sheet and the operating statements. The manner of showing depreciation in Figure 18 is not generally accepted as satisfactory, because it should be charged either as a manufacturing expense or to some other phase of operation.

During an accounting period charges may have been made to asset accounts which were really expense items, or *vice versa.* Mistakes of this sort are very serious if the amounts involved are considerable, because they make errors in asset valuations that will be carried forward for years. These erroneous asset valuations will, in turn, distort the allowances for depreciation in future periods until the asset affected has been entirely written off or retired. It is necessary, therefore, for one making balance sheets and operating statements to satisfy himself that the books have been kept with due regard to the distinction between charges to capital and to income.

A less serious type of error is to charge an item to the wrong expense account or to credit the wrong income account. While such mistakes may not affect the net profit, they do distort the relations of the various sections of the operating statements to each other, thus

The New York Central Railroad Company

INCOME ACCOUNT FOR THE YEAR

INCLUDING BOSTON & ALBANY RAILROAD, OHIO CENTRAL LINES, MICHIGAN CENTRAL LINES, AND BIG FOUR LINES. (RESULTS FOR JANUARY, 1930, AS TO THE ROADS COVERED BY THE LEASES EFFECTIVE FEBRUARY 1, 1930, ARE INCLUDED FOR PURPOSES OF COMPARISON. FIGURES FOR 1929 HAVE BEEN REVISED BY INCLUDING THE FIGURES FOR ROADS COVERED BY LEASES EFFECTIVE FEBRUARY 1, 1930)

OPERATING INCOME	Year ended Dec. 31, 1930 11,421·55 *miles operated*	Year ended Dec. 31, 1929 11.485·18 *miles operated*	Increase	Decrease 63·63 *miles*
RAILWAY OPERATIONS				
Railway operating revenues	$478,918,347 55	$590,008,623 54		$111,090,275 99
Railway operating expenses	376,729,417 97	441,245,593 33		64,516,175 36
NET REVENUE FROM RAILWAY OPERATIONS	$102,188,929 58	$148,763,030 21		$46,574,100 63
Percentage of expenses to revenues	(78·66)	(74·78)	(3·88)	
Railway tax accruals	$34,009,020 80	$39,769,413 55		$5,760,392 75
Uncollectible railway revenues	125,750 30	135,687 82		9,937 52
RAILWAY OPERATING INCOME	$68,054,158 48	$108,857,928 84		$40,803,770 36
Equipment rents, net debit	$10,288,151 34	$6,749,251 41	$3,538,899 93	
Joint facility rents, net debit	530,479 77	Cr 1,594,102 32	2,124,582 09	
NET RAILWAY OPERATING INCOME	$57,235,527 37	$103,702,779 75		$46,467,252 38
MISCELLANEOUS OPERATIONS				
Revenues	$999,418 80	$1,111,025 30		$111,606 50
Expenses and taxes	963,296 74	1,068,358 55		105,061 81
MISCELLANEOUS OPERATING INCOME	$36,122 06	$42,666 75		$6,544 69
TOTAL OPERATING INCOME	$57,271,649 43	$103,745,446 50		$46,473,797 07
NON-OPERATING INCOME				
Income from lease of road	$164,397 38	$143,185 40	$21,211 98	
Miscellaneous rent income	5,887,457 91	5,610,332 00	277,125 91	
Miscellaneous non-operating physical property	3,448,361 23	2,889,944 27	558,416 96	
Separately operated properties—profit	2,003,285 39	720,399 80	1,282,885 59	
Dividend income	14,916,581 73	13,041,084 56	1,875,497 17	
Income from funded securities and accounts	6,045,985 10	6,136,742 40		$90,757 30
Income from unfunded securities and accounts	4,377,680 68	5,072,782 07		695,101 39
Income from sinking and other reserve funds	211,044 92	203,232 39	7,812 53	
Release of premiums on funded debt	—	65 00		65 00
Miscellaneous income	2,672,189 25	314,246 38	2,357,942 87	
TOTAL NON-OPERATING INCOME	$39,726,983 59	$34,132,014 27	$5,594,969 32	
GROSS INCOME	$96,998,633 02	$137,877,460 77		$40,878,827 75
DEDUCTIONS FROM GROSS INCOME				
Rent for leased roads	$27,762,047 27	$28,635,066 07		$873,018 80
Miscellaneous rents	1,523,115 86	1,335,210 90	$187,904 96	
Miscellaneous tax accruals	2,097,182 75	1,979,261 65	117,921 10	
Separately operated properties—loss	148,657 42	123,462 01	25,195 41	
Interest on funded debt	27,217,659 95	26,497,379 92	720,280 03	
Interest on unfunded debt	1,414,406 50	765,906 17	648,500 33	
Amortization of discount on funded debt	539,844 68	829,331 31		289,486 63
Maintenance of investment organization	35,277 11	10,478 93	24,798 18	
Miscellaneous income charges	278,649 61	272,780 04	5,869 57	
TOTAL DEDUCTIONS FROM GROSS INCOME	$61,016,841 15	$60,448,877 00	$567,964 15	
NET INCOME	$35,981,791 87	$77,428,583 77		$41,446,791 90
Per cent to capital stock outstanding	(7·21)	(16·70)		(9·49)
DISPOSITION OF NET INCOME				
Sinking and other reserve funds	$91,087 02	$190,948 89		$99,861 87
TOTAL APPROPRIATIONS OF INCOME	$91,087 02	$190,948 89		$99,861 87
SURPLUS FOR THE YEAR	$35,890,704 85	$77,237,634 88		$41,346,930 03
Dividends declared during the year	$39,940,593 60	$37,090,531 60		

FIGURE 21

invalidating comparisons from period to period. Closely related to these errors, but of graver import, is the failure to enter on the purchase record goods which have been received and included in the inventory, or the failure to inventory materials or merchandise which have been recorded in the purchase journal. Such mistakes entail errors in both the balance sheet and the operating statements.

Still another possibility for the income statement to mirror falsely the events of the period arises through the anticipation of unrealized profits. If, for example, some asset is written up on the books to more than its former carrying value, the net gain of the period will be increased by the amount of the addition. Not to dwell upon the fact that appraisals are frequently overoptimistic, there is always a real possibility of deflation. Therefore it is unwise to write on the books any profit that has not been realized through actual sale. As a corollary it may be added that the conservative accountant tries to make provision for every possible loss.

The making of the operating statements from books or from the trial balance, then, is a task demanding great care to ascertain that all adjustments have been made properly, that the books have been kept correctly in the past, that no profits have been anticipated, and that adequate reserves have been established for probable losses.

In case double entry books are not available, the statement of profit and loss may be made by what is known as the "single entry method." The basis of such a statement is the change of net worth during the period. The form of this statement would be:

Net Worth at close of period	xxxxx	
+ Withdrawals of Capital during period	xxxxx	
		xxxxx
Less:		
Net Worth at beginning of period	xxxxx	
+ Investments of Capital during period	xxxxx	
		xxxxx
Profit for period		xxxxx

Of course, if the subtrahend is greater than the minuend in the above form, there has been a loss instead of a profit. Such an income statement depends on accurate information as to the amount of the net worth at the beginning and end of the period, as well as on knowing what additional investments have been made and what was withdrawn. The statement is unsatisfactory, even when correct, in that it fails to show how the profit has been made or the loss sustained. Ability to

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PROVIDENT MUTUAL LIFE INSURANCE COMPANY

LOSS AND GAIN EXHIBIT FOR THE YEAR 1930

		Gain in Surplus	Loss in Surplus
INSURANCE			
Total gross premiums received	$33,506,760		
Deduct net premiums on same	27,817,593		
Loading on gross premiums	$ 5,689,167		
Deduct insurance expenses	5,733,508		
Loss from loading			$ 44,341
INTEREST			
Interest, dividends, rents earned during year	$11,988,854		
Deduct investment expenses	936,673		
Net interest, dividends, and rents earned	$11,052,181		
Deduct net interest on disability and accidental death benefits	127,854		
Balance	$10,924,327		
Deduct interest required to maintain reserve	7,342,011		
Gain from interest		$3,582,316	
MORTALITY (Insurance)			
Expected mortality on net amount at risk	$ 9,760,621		
Total death losses incurred	5,645,991		
Gain		4,114,630	
MORTALITY (Annuities)			
Loss from mortality under annuities			22,196
SURRENDERS, LAPSES AND CHARGES			
Total gain during year from surrenders, lapses, and charges		346,648	
DIVIDENDS AND SPECIAL RESERVES			
Decrease in surplus on account of dividends to policyholders			7,307,156
Increase in special reserves during the year			446,757
PROFIT AND LOSS (excluding investments)			
Carried to profit account	$ 16,883		
Carried to loss account	10,693		
		6,190	
INVESTMENTS			
Real Estate			
Total gain from real estate		2,847	
Total loss from real estate			99,057
Stocks and Bonds			
Total gain from stocks and bonds		72,997	
Total loss from stocks and bonds			111,796
Gain on maturity of mortgages		7,953	
Loss from assets not admitted			34,143
MISCELLANEOUS			
Net loss on account of total and permanent disability benefits included in life policies			80,227
Net gain on account of accidental death benefits included in life policies		12,092	
Total gains and losses in surplus during year		$8,145,673	$8,145,673

FIGURE 22

use this formula, however, may be very important in the settlement of disputes between partners who have failed to keep their books correctly, or in establishing the year's income for a farmer by "the inventory method."

So far in this chapter attention has been directed mainly to the operating statements of manufacturing and merchandising organizations. A variation in the type of business done may necessitate considerable changes in the forms of these statements. Figure 21, the Income Account of a railway company, is presented to illustrate this divergence of form. This income account is an excellent example of the comparative form of statement. The Provident Mutual Life Insurance Company is a non-profit organization, or rather one whose earnings all belong to its customer-owners; it presents a rather complicated Loss and Gain Exhibit, Figure 22.

Equally interesting is the Consolidated Statement of Funds Available for Appropriation and Disbursement taken from the report of the Treasurer of the Rockefeller Foundation. Reports in this form are used for charities, clubs, churches, and other non-profit organizations. It is usual, however, to show several sources of receipts, such as membership dues, initiation fees, receipts from uses of services, contributions from individuals and organizations, and proceeds of sales or of benefit performances.

Sometimes the statement of profit and loss is prepared in account form. Such an arrangement is illustrated by Figure 111 in Chapter XXIII. The use of the account form, however, is so uncommon as to be of little practical importance.

In summary, the exact form of the operating statements will depend on the type of business, but the layout should always be such as to emphasize important items and to present all the data clearly. The statements cannot be correct unless the individual accounts have been adjusted in accordance with the facts. The terminology should be intelligible to the type of reader for whom the report is prepared, and the amount of detail or condensation should be planned to meet the uses to which the report is to be put. The descriptive matter in Figure 20 (and also in Figure 2) illustrates how a statement may be made plain to the average reader.

The Statement of Surplus.—The statement of surplus, illustrated in Figures 24 and 25, is made whenever it is desirable to reconcile the surplus as of two different dates, usually balance sheet dates. If it has been found that the surplus on the books at the earlier date was incorrect, the first part of the statement must be devoted to detailing those adjustments necessary to harmonize the account with the facts. When the corrected balance of the earlier date has been set down,

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THE ROCKEFELLER FOUNDATION

CONSOLIDATED STATEMENT OF FUNDS AVAILABLE FOR APPROPRIATION AND DISBURSEMENT

AMOUNTS AVAILABLE			
PRIOR OBLIGATIONS ACCOUNT			
Balance, December 31, 1929		$35,725,914.02	
Unused balances of appropriations allowed to lapse	$1,039,834.50		
Authorizations allowed to lapse	1,300,700.00		
Funds set aside allowed to lapse	1,356.45	2,341,890.95	$33,384,023.07
APPROPRIATIONS ACCOUNTS			
Balance, December 31, 1929		$34,771,916.99	
Income and refunds received during the year ending December 31, 1930, added to Appropriations Account		12,435,558.06	
Unused balances of Prior Obligations allowed to lapse		1,039,834.50	48,247,309.55
			$81,631,332.62
DISBURSEMENTS			
Universities and other educational institutions			
Education			
Medical science	$ 559,417.98		
Public health	58,672.63		
Nursing	69,407.96		
Social science	642,001.17		
Natural science	Cr. 198,878.00		
Departmental development	361,500.49		
Research programs	1,368,744.40		
Land and buildings	3,103,796.68	$ 5,964,663.31	
Research institutions and organizations			
Medical science education	$ 2,822.29		
General development	682,646.59		
Research programs	607,470.58		
Land and buildings	726,847.00	2,019,786.46	
Special committees and commissions		175,865.34	
Fellowships and grants in aid		1,180,251.60	
Miscellaneous		679,062.52	
Public health		2,769,399.17	
General		2,067,506.76	
Administration		872,103.68	15,728,638.84
Balance, December 31, 1930			$65,902,693.78
This balance is available for the following purposes:			
Amount due on prior obligations		$24,188,067.95	
Amount due on current appropriations		36,988,678.05	
Amount available for appropriation		4,725,947.78	
		$65,902,693.78	

FIGURE 23

the next step is to add the credits to surplus during the period under review. From the total available surplus thus found should be deducted the sum of the charges against surplus properly belonging to the period. The remainder should be the correct book balance of surplus at the close of the period. As in the case of other statements, the statement of surplus varies somewhat in form and fullness with the purpose for which it is made, but the content is always essentially that described.

THE SAMPLE CORPORATION

STATEMENT OF SURPLUS

December 31, 1930 to December 31, 1931

Surplus per Books, December 31, 1930		$ 67,000.00
Add:		
Items omitted from Inventory December 31, 1930	$ 3,000.00	
Understatement of Deferred Interest Expense December 31, 1930	1,000.00	4,000.00
		$ 71,000.00
Deduct:		
Repair charged in error to Building Account	$ 4,000.00	
Understatement of Accrued Wages December 31, 1930	2,000.00	
Consignment out credited to Sales in 1930	3,000.00	
Underfooting of Purchase Record, December, 1930 (Balanced by understatement of Accounts Payable)	1,000.00	10,000.00
Corrected Surplus, December 31, 1930		$ 61,000.00
Add: Net Profit for 1931		387,200.00
		$448,200.00
Deduct:		
Reserve for Sinking Fund	$21,000.00	
Dividends on Preferred Stock	14,000.00	
Dividends on Common Stock	30,000.00	65,000.00
Surplus, December 31, 1931		$383,200.00

FIGURE 24

Summary.—The same principles of definiteness, clarity, and attractive arrangement that have been applied to the construction of balance sheets are important in the making of the various statements of operation. Form and appearance, however, are of less importance than accuracy. Accuracy involves the correctness of the accounts from which the statement is made, the adjustment of those accounts for every item that should be considered, and the exclusion of the irrelevant. Accuracy may demand the distribution of accounts with general titles among two or more statements by a process of prorating. Although it is possible to make a statement of profit and loss by the single entry method, the only safe source of data is a set of double entry books which have been kept intelligently.

The making of a statement of manufacture depends upon a correct classification of material, direct labor, and manufacturing expense, and upon accurate inventories, particularly of work in process. Although there are methods for estimating the value of goods in process, a system of cost accounting is necessary if the inventory is to be reliable.

The New York Central Railroad Company

Profit and Loss account

BALANCE TO CREDIT OF PROFIT AND LOSS, DECEMBER 31, 1929			$295,010,378 40
ADDITIONS:			
The surplus income of The New York Central Railroad Company for the year 1930 based on the inclusion of results for the month of January as to the roads covered by the leases effective February 1, 1930, and as shown on the preceding page is		$35,890,704 85	
From this should be deducted the net income for the month of January, 1930, of the following companies whose lines were leased effective February 1, 1930:			
Michigan Central Railroad Company	$669,580 54		
Chicago Kalamazoo and Saginaw Railway Company	21,326 56		
Cleveland Cincinnati Chicago and St Louis Railway Company	211,669 66		
Cincinnati Northern Railroad Company	82,007 47		
Evansville Indianapolis and Terre Haute Railway Company	20,902 56	1,005,486 79	
leaving actual surplus for the year 1930, to be transferred to profit and loss			34,885,218 06
Profit on securities sold (net)		$103,310 98	
Profit on road and equipment sold		125,122 80	
Profit on sale of other property (net)		167,165 30	
Sundry adjustments (net), unrefundable overcharges and uncollectible accounts		19,919 75	415,518 83
			$330,311,115 29
DEDUCTIONS:			
Dividend appropriations of surplus		$39,940,593 60	
Depreciation prior to July 1, 1907, on equipment retired during the year		181,764 57	
Loss on property retired		906,637 52	
Loss upon securities owned (notes of New York State Railways and Schenectady Railway Co.)		1,889,148 00	
Other items (net)		609,045 72	43,527,189 41
BALANCE TO CREDIT OF PROFIT AND LOSS, DECEMBER 31, 1930			$286,783,925 88

FIGURE 25
A STATEMENT OF SURPLUS

The statement of profit and loss is frequently known as a profit and loss account, an income statement, or a revenue account. Whatever the name, the aim of this report is to bring together all the items of income and of expense during the period under consideration. Of course the statement is more readable if the cost of sales can be taken as one figure from a supporting exhibit, such as the statement of the cost of manufacture and of sales. In many cases condensation of the material with supporting schedules is desirable. The profit and loss statement should be planned to show the result of trading, the result of regular operation, and the final profit after considering financial and other items of gain and loss. It may be enlightening to include a final section showing the distribution of the profit. For non-trading organizations the form of profit and loss statement must be adapted to the type of business transacted, and for non-profit organizations it is necessary to substitute the statement of receipts and payments.

It is usually impossible to make a complete report for a business organization without including a statement of surplus.

QUESTIONS

1. Discuss the nature of cash discounts, and show the effect of the theory adopted upon the manner of handling the discounts on the books and in the statements.
2. Select one of the profit and loss statements presented in this chapter and criticize it on the basis of the principles discussed.
3. Draw up a form of receipts and payments statement which you would consider suitable for some church or club of which you are a member, or for a university in which you are registered.
4. If you were considering the investment of a considerable sum of money in the stock of a merchandising corporation, what statements would you wish to see and what would you expect to learn from them?
5. If you were called in to close the books of a business corporation, how would you satisfy yourself that all of the necessary adjustments had been made? How would you satisfy yourself that the books had been kept correctly?
6. Suppose that you have been called upon to make the statements of a business whose books have been kept by single entry. A balance sheet had been drawn up at the end of the preceding period which you can accept as correct. You prepare a balance sheet as of the end of the period just closed and a statement of profit and loss by the single entry formula. You are then asked to prepare such a statement of profit and loss as other businesses have, and are told that every transaction during the period has been entered in either the cash book or the day book. Could you make the statement desired? If so, how would you proceed?
7. Public utility accountants greatly emphasize the "operating ratio," which is the quotient of the operating expenses divided by the revenues from operation. Can this operating ratio be used in connection with a manufacturing business? with a merchandising business? with a bank?
8. How might an attempt to inflate profits be made by a manufacturing firm? by a merchandising organization?
9. What are the advantages of comparative operating statements?
10. What do you think of the suggestion that cash discounts on sales should be treated as selling expenses?

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CHAPTER III

VALUATION OF CURRENT ASSETS

Current Assets.—The accuracy of balance sheets and of statements of operation depends upon the correctness of the valuations of the items in the real accounts. If these have been adjusted to proper values, and if the current transactions have been entered on the books at the amounts actually involved, there will be an automatic attainment of accuracy in the nominal accounts. The matter of valuation of the real accounts is, therefore, of the utmost importance to good accounting.

In general, current assets should be valued at the amount of cash into which they can be converted with a reasonable degree of promptness. This is true because the test of currency is convertibility into cash within a short time in the normal course of business. For balance sheets and, indeed, for any other purposes, notes and accounts receivable are worth only what they will yield in actual collections. Merchandise that has deteriorated or is obsolete is only as valuable as the cash that it will bring. Simple as the fundamental principle of valuation of current assets may be, there are many difficulties in its application. There are questions as to just what should be included in an account, of whether all the items or articles have been counted, of the validity of title, of the shrinkage in quantity or in value to be allowed for, and of the interpretation of records and of market quotations to determine the correct unit prices. In fact, problems of valuation have caused so much controversy that this chapter and the two that follow can merely set forth some of the widely accepted principles and corollaries. In the present chapter attention will be confined to some of the more important items included as current assets.

Cash.—Since the criterion of the worth of a current asset is its convertibility into cash, a section dealing with the value of cash may seem absurd. Before the national banking system had driven out the state bank note currency, one was never sure what his cash was worth until he had presented all but the specie at the banks for redemption. Today, however, although problems may arise as to the valuation of deposits in foreign banks, the main questions center about what should be included under the title "Cash."

Cash in foreign branches or on deposit in banks abroad should be converted into dollars at the rate of exchange prevailing on the date of the balance sheet, that is, at the rate which could be obtained for

sight bills. If there is any serious discrepancy between the value of this cash abroad as carried on the books and as converted at the current rate, there can be an adjustment of the book account into such another account as "Profit and Loss on Fluctuations of Exchange."

In the strictest sense of the term, actual money on hand is all that should be reported as cash; but general usage permits the inclusion of deposits in solvent banks if they are subject to withdrawal by ordinary check, and of checks, money orders, and bank drafts on hand awaiting deposit. Deposits in savings banks not subject to check are not properly classed as cash but should be included among the investments. Similarly, deposits in checking accounts of special funds not available for ordinary purposes should be shown separately under such appropriate titles as Sinking Fund Cash, Building Fund, or Replacement Fund. The proceeds of the sale of bonds issued to provide the means for expansion or for some other specific purpose should not be reported in the balance sheet as general cash. Ordinarily there is no wrong in considering as cash, items due and deposited with the bank for collection even though the bank withholds credit until the arrival of the "return."

Certificates of deposit, I.O.U.'s, postage and revenue stamps, mileage books, and expense memoranda should not be counted as cash. Certificates of deposit are temporary investments yielding interest if outstanding a sufficient length of time; I.O.U.'s are, perhaps, "Other Current Assets," but they should not be considered assets at all unless they are actually collectible; a few stamps of small denominations in the cash drawer may be allowed to count as cash, but in any considerable amount they should be listed as supplies, being deferred assets; similarly, mileage books and railway tickets are deferred assets. Before closing the books, all imprest funds should be replenished, thus clearing the cash drawers of expense memoranda and receipts, and distributing all the expenditures. Checks deposited with bids to insure good faith should not be considered cash by the bidders because, in the first place, such checks are not in the nature of receivable items and, in the second place, they may be forfeited.

Especial attention should be given to the handling of the cash records. It is not considered right, for example, to keep the cash book open for several days after the close of an accounting period in order that the ratio of cash to accounts receivable may be higher. Similarly, checks which have been drawn and signed and are ready to be mailed to pay creditors are best treated as if they had actually been cashed by the creditors, that is, as if the payment had been made, unless there is actual intention to delay the payment. If payment is to be delayed, it is better not to draw the check. Some firms are inclined to count as cash their own checks which have been mailed but which have not yet been honored by the bank, on the ground that payment could be stopped. Honorable business men do not stop payment on checks unless there is some very good reason for such action. Carrying further this line of reasoning, it follows that an overdraft exists if there are outstanding checks in excess of the bank balance. Such an overdraft is a liability. However, if a going concern has more than one bank account, balances at one or more banks may be set off against overdrafts at others, and only the net balance or overdraft may be shown in published balance sheets. But statements prepared for the officers and directors should present the situation in detail, and a balance sheet submitted in soliciting credit would be considered fraudulent if it failed to disclose the overdrafts.

In deciding what to show in the balance sheet, it is safe to consider as cash only what is already actually available for meeting current demands, less overdrafts if any exist.

Notes Receivable.—Notes and acceptances receivable are ordinarily grouped next to cash in currency because they can be discounted at the commercial banks or on the open market. Frequently both notes and acceptances receivable are recorded in one account because both types of items are signed promises to pay sums certain of money at definitely determinable times, and because both are negotiable by endorsement and delivery. There are customers from time to time who are unable to pay as their accounts fall due and who offer notes as a means of postponing final settlement. On the other hand, the trade acceptance has been employed since the advent of the Federal Reserve Banks partly in order that payments might be made promptly. For this reason it is frequently considered advisable to present the acceptances separately as an asset of somewhat higher liquidity than the notes. This practice is particularly valuable when balance sheets are prepared for credit purposes.

Since it is important that Notes Receivable should be a strictly current item, several precautions are necessary. First, the notes not yet due should be separated from those past due, as in Figure 6, the form of balance sheet recommended by the Federal Reserve Board. Second, notes received from trade debtors and commercial bills receivable should be segregated from such other items as notes of officers, stockholders, owners, employees, or affiliated companies. The obligations of affiliated companies may be more like permanent investments than like any other type of asset, while the currency of paper signed by individuals connected with the organization as owners or employees is frequently very doubtful. For this reason the Federal Reserve Board form of balance sheet exhibits these items in a special group as Other Current Assets. Third, those notes and acceptances which have been discounted or transferred under endorsement or guarantee should be separated from those in hand, and if any have been pledged as security they should stand as a distinct, specifically described item in the statement. Fourth, notes that have been dishonored should not be included among the other notes. They are best charged back to the customer or other person from whom they were received, in a suspense account, unless they have been endorsed by some third party of unquestioned credit. Of course, dishonored notes which bear the endorsement of customers of good credit may be considered current items during the brief period which should be allowed for the endorsers to take them up. Fifth, except in peculiar cases, notes having more than a year to run should not be considered current. In some businesses, however, in which notes are given on most sales and in which it is a general practice for some of them to run over a year, it may be the custom to consider these sales notes as current provided they appear to be good.

Having decided what items may be included among the notes receivable, the next step is to consider their value. If partial payments have been made on notes, they should be valued in the balance sheet net of these payments. If a non-interest-bearing note is held it is technically not worth par, but the face value less a discount from the balance sheet date to maturity. Thus, if the balance sheet is to be strictly accurate, such notes should be valued at face minus a reserve for valuation equal to the discount. In practice this method of valuation is seldom used. Indeed, unless the amounts involved are considerable, such valuation would be overmeticulous. On the other hand, if notes have been accepted at discounts, valuation is virtually achieved by the inclusion among the liabilities of an item for Unearned Interest Received, a deferred income. The final valuation problem involves the provision of an adequate reserve for bad debts. Since one such reserve is considered sufficient, its discussion will be taken up under the head of Accounts Receivable.

Accounts Receivable.—If the caption Accounts Receivable is used without qualification, it should be applied only to current open accounts of trade debtors. The model balance sheet of the Federal Reserve Board, Figure 6, accomplished this limitation by means of very specific titles, "Accounts receivable, customers' (not past due)," and "Accounts receivable, customers' (past due)." In the group of Other Current Assets, this form has a heading for "Indebtedness of officers, stockholders, and employees." When there are such assets as Due from Affiliated Companies, Claims upon Transportation Companies, Stock Subscriptions, and Debit Balances in Creditors' Accounts, these should be presented under their own distinctive headings. Indeed, Advances to Affiliated Companies may at times belong with the permanent investments rather than among current items. Advances to Salesmen should ordinarily be placed with the deferred items because these advances are normally used up in traveling expenses: similarly, Prepayments on Purchase Contracts belong with the deferred assets as they will not return as cash unless the contract is dissolved. Advances from customers for goods not delivered or credit balances in the accounts of trade debtors are current liabilities rather than deductions from the accounts receivable. If it is generally well understood that practically all sales of a firm are made on an installment plan, then installment accounts receivable may be reported as Accounts Receivable; otherwise they should be exhibited under a separate head because their currency is low. The object of this paragraph has been to point out that the balance sheet should be constructed so as to show exactly what is currently due from customers on open account and to set forth the precise nature of the other receivables.

If accounts of customers have been hypothecated, the fact should be apparent on the statement. An excellent method of presenting the situation is:

Customers' Accounts Assigned	$20,000.00	
Less: Advance by Assignee	15,000.00	
Margin		$5,000.00

An alternative is to list the Customers' Accounts Assigned as a separate current item and to class the Advance by the Assignee among the current liabilities. Either of these methods brings out distinctly the fact that customers' accounts have been pledged, a fact which is considered very important by bankers and credit men.

In valuing accounts receivable, care should be taken to eliminate whatever is not legally collectible from the debtors. For example, customers may be charged with the value of shipping containers which may be returned for credit. If Sales was credited for the value of these containers, a reserve should be set up by debiting Sales and crediting Reserve for Containers Returnable by Customers. In the statement this reserve will be deducted from the amount of the Accounts Receivable. It would be better, however, in entering the sale to credit Sales with the invoice price of the merchandise, and to credit the Reserve for Containers Returnable by Customers for their value. This could be accomplished by a "containers" column in the Sales Journal and would save making the adjustment. Similar reserves should be established for guarantees of merchandise, for contractual obligations to make customers allowances for freight, and for return privileges; but if goods are delivered on approval, no sale has yet been consummated. A reserve for sales discounts open to customers is optional, its need depending upon the method adopted for dealing with cash discounts.

The second step in valuing accounts receivable is the setting up of the "Reserve for Bad Debts." This allowance should be ample to cover the probable losses in the notes and acceptances receivable, the trade debtors, the hypothecated accounts, and all of the miscellaneous receivables. If a business has been in operation for several years, the amount allowed may be based upon its past experience. The usual method is to set up a debit to Bad Debts and a credit to Reserve for Bad Debts of a certain per cent of the notes and accounts receivable, or of the sales of the period, or of the credit sales. The base chosen matters little if the rate has been worked out from the records. However, if the proportion of credit sales to cash sales has varied noticeably from period to period, the credit sales is a better base than the total sales. Moreover, if the business is distinctly seasonal, the percentage of outstandings that should be in the reserve may vary according to the time of the year. Finally, reserves should be larger proportionally to outstandings during periods of business decline and depression than during periods of improvement. Probably they should be largest in periods of considerable inflation. The Income Tax Regulations require that the amount set aside be reasonable in view of past experience.

If the business is new, or if trade conditions are unfavorable, it may be wise to analyze the accounts themselves in order to determine the proper size of the reserve. Every account should be inspected, and those of doubtful collectibility should be considered carefully. Those known to be bad, that is, worthless, should be written off at once. Estimates should be made of the value of doubtful accounts, most of which will yield something even if the customers go through bankruptcy. The sum of these estimated losses on accounts and notes may be taken as the amount of the Reserve for Bad Debts that should appear on the balance sheet. Needless to say, such analysis of accounts should be made by those who are familiar with the customers and who are capable of taking such a detached view that it will enable them to face the facts squarely and fearlessly.

Sometimes the accounts are "aged," that is, classified according to whether they are not yet due or are overdue, and as to the period that has elapsed from the dates when the overdue accounts matured. In filling in a form, such as that in Figure 26, each open account is listed. If an account is made up of several open balances, of which one or more is past due, amounts may appear in several columns. Thus the footings of the columns afford an excellent idea of the state of collections, show the totals of credit balances and of open discounts, and warn of the proportion of accounts that may be considered doubtful. A comparison of these agings from period to period is a valuable check on the adequacy of the reserve for bad debts calculated on some other basis. Or if other bases fail, the calculation of the reserve may be based on this aging analysis.

Accounts which are so slow as to be of doubtful collectibility may well be removed from the customers' ledger to a "Suspense Ledger," where they will be kept pending settlement or abandonment. Thus the good accounts may be separated from those which are questionable.

Accounts with foreign firms, payable in foreign currencies, should be valued on the basis of the rates for sight bills of exchange on the date of the balance sheet. In times of wide fluctuations in exchange rates, it may be necessary to provide a valuation reserve against such shrinkages as appear probable.

ANALYSIS OF ACCOUNTS RECEIVABLE

No.	Name	Not Due	Overdue less than 30 days	Overdue 30 days to 59 days	Overdue 60 days to 89 days	Overdue 90 days or more	Remarks	Credit Balance	Sales Discount Open

FIGURE 26

FORM FOR THE AGING OF ACCOUNTS

On published balance sheets it is customary to show the accounts receivable "net of reserves," thus concealing from competitors the estimated credit losses. For this reason, if the statement contains the unqualified term Trade Debtors or Accounts Receivable, the reader has a right to assume that the item is presented net of all proper valuation reserves.

If precautions similar to those suggested in connection with Trade Debtors are employed in connection with the other receivable items, these accounts will be valued conservatively on the balance sheet.

The Physical Inventory.—Perhaps no item is more difficult to value correctly than the inventory. This is because the mere problem of counting is complex in itself and because there may be so many possible prices from which to choose. In this section attention will be concentrated upon the method of counting, and subsequent sections will deal with some of the more important questions of valuation.

In taking the physical inventory, the storage area is divided into small, definitely bounded sections, which are apportioned among squads of inventory takers. These squads proceed over each section in a systematic manner, identifying and counting the articles in each bin, shelf, rack, or pile. As the count is made, tags, similar to Figure 27, are attached to the containers or piles of stock, the inventorying squad filling out the sections A and C. Section C is immediately torn off and sent to the office. A checking squad, composed of different individuals, follows the first squad. The count of the second squad is entered on section B of the tag, which is torn off and sent to the office. The office force compares sections B and C of each tag and, in case there is a discrepancy, sends out a third squad to determine the correct count. If

○

Inventory Tag No.__________A
Symbol______________ Name______________

Inventory Tag No.__________B
Symbol______________ Name______________
Unit______________ Count______________
Section______________ Bin Shelf______________
Department______________________________
Check by______________________________

Inventory Tag No.__________C
Symbol______________ Name______________
Unit______________ Count______________
Section______________ Bin Shelf______________
Department______________________________
Count by______________________________

FIGURE 27

INVENTORY TAG

some such system is adopted, if the teams are carefully chosen and instructed beforehand, if the areas to be covered are thoroughly mapped, and if each tag is accounted for, the count of the goods on hand should be reasonably accurate. The count of goods out on consignment, in transit between branches, and shipments in from suppliers, if these are to be enumerated, must be obtained from the shipping records and invoices. Care must be taken to exclude goods on hand if the title is vested in some other owner.

INVENTORY SHEET

Department Section Sheet # Date 19

Tag No.	Symbol	Description	Unit	Count	Price		Extension		
					Cost	Market	Cost	Market	Lower of Cost or Market

FIGURE 28

The verified tags are sorted by types of articles or by departments, or both, and listed on forms similar to Figure 28. Cost prices and market prices are supplied by the purchasing department and entered in the appropriate columns. After that the extensions can be made. The lower of the two extensions is carried over to the last column, "Lower of Cost or Market," and it is the total of this column which is the value of the inventory. Of course, if the inventory is extensive, many sheets have to be used in the summary, and the totals of these must be assembled to give the final figures. Taking the physical inventory is such a tedious, expensive process that many organizations have instituted what are called "perpetual inventories" or "book inventories," that is, records to show the quantity, or the quantity and value, of each type of stock on hand.

Perpetual Inventories.—Figures 29a and 29b illustrate the two most common methods of keeping perpetual inventories. Figure 29a

exemplifies what is known as the "first in first out" or "oldest price first" plan. Three purchases are recorded, shipments received on June 1, 4, and 5, each at a different unit price. The number of units purchased and their value are added in each case to the former balance. The first two issues are priced at $12.00 per unit, the only purchase price so far. The third issue, June 6, comes subsequent to the second and third purchases, yet it is valued at the original $12.00 per unit on the theory that the first receipt has not yet been exhausted. The fourth issue is interpreted as comprising 15 units from the first receipt, which is thereupon exhausted, and ten from the second:

15 units at $12.00	$180.00
10 units at 14.00	140.00
25 units	$320.00

and so is valued at $320.00. The fifth issue is deemed to be entirely from the second purchase and is priced at $14.00 per unit, or $140.00. After this fifth issue the balances as found by subtraction are 130 units and $1,845.00. This valuation of the balance can be checked on the assumption that the stock at this point consists of:

the entire third receipt	50 units at $14.50	$ 725.00
the remainder of the second receipt	80 units at 14.00	1,120.00
	130 units	$1,845.00

Although the principle of valuing stock by this method is simple, the actual keeping of the cards may be a confusing matter. If many shipments are received at different prices, it is difficult to separate the various lots. Of course it would be possible to surmount all the difficulty and to maintain accurate records by spending the necessary time. In using this oldest-price-first method of valuing the stock issued, no attention need be paid to the identity of the physical units provided all fulfill the same specifications.

Figure 29b illustrates the "standard cost" or "moving average" system of stock valuation. The entries are identical with those in Figure 29a up to June 5. After the third lot has been received, the stock consists of 195 units of a value of $2,665.00, or an average of $13.67 per unit. The third, fourth, and fifth issues are priced at this average, $13.67. On June 10 a fourth purchase raises the stock to 180 units worth $2,526.45, or an average of $14.04 each. Thus the sixth issue is valued at $14.04. So each new lot received changes the average or issue price unless the unit cost of the receipt happens to be the same as the average preceding the coming of the new lot. According to the

Symbol______________ Minimum Stock______________
Description______________ Maximum Stock______________
Location______________ Unit______________

Date	Units			Price	Value		
	Received	Issued	Balance		Received	Issued	Balance
June 1	100		100	12.00	1,200.00		1,200.00
2		25	75	12.00		300.00	900.00
3		30	45	12.00		360.00	540.00
4	100		145	14.00	1,400.00		1,940.00
5	50		195	14.50	725.00		2,665.00
6		30	165	12.00		360.00	2,305.00
8		25	140	{12.00 14.00}		320.00	1,985.00
9		10	130	14.00		140.00	1,845.00

FIGURE 29a
VALUATION STOCK CARD, "FIRST IN FIRST OUT"

Symbol______________ Minimum Stock______________
Description______________ Maximum Stock______________
Location______________ Unit______________

Date	Units			Price	Value		
	Received	Issued	Balance		Received	Issued	Balance
June 1	100		100	12.00	1,200.00		1,200.00
2		25	75	12.00		300.00	900.00
3		30	45	12.00		360.00	540.00
4	100		145	14.00	1,400.00		1,940.00
5	50		195	14.50	725.00		2,665.00
6		30	165	13.67		410.10	2,254.90
8		25	140	13.67		341.75	1,913.15
9		10	130	13.67		136.70	1,776.45
10	50		180	15.00	750.00		2,526.45
11		20	160	14.04		280.80	2,245.65

FIGURE 29b
VALUATION STOCK CARD, "STANDARD COST"

record, the balance on June 11 is 160 units worth $2,245.65, but if 160 is multiplied by $14.04 the product is $2,246.40, a difference of $.75. Such discrepancies can be avoided by carrying out the price to decimal fractions of cents, a practice which is necessary if the average unit costs are very small. In such a case as the illustration, however, it is perfectly satisfactory to find average prices to the nearest cent. As a new average is calculated with each receipt, the discrepancy will never reach an amount of any practical importance.

In posting receipts for entry in the stock records by either of these systems, the entire expense of procuring the goods is considered. That is, to the invoice price are added transportation in, duties, consular fees, insurance in transit, and any other items that form a legitimate cost of the materials or merchandise. In case the "penalty theory" of discounts has been adopted, the open purchase discount is deducted from this total, and the remainder is divided by the number of units to obtain the unit price. The inventory records should be controlled by general ledger accounts, such as Inventory of Raw Materials, Inventory of Finished Parts, and Inventory of Finished Goods. If a specific order cost accounting system is in use there will also be a control account for Work in Process.

The persons in charge of stock should use any spare time they have in making physical counts of the various items. The results of these counts should be compared with the figures on the stock records, and any discrepancies should be investigated. If the physical count cannot be reconciled with the record, a correcting entry must be made on the stock sheet and also in the controlling account. If the records are carefully kept, and if physical counts are so frequent as to cover the entire stock at least once a year, the perpetual inventory system obviates the necessity for an annual all-inclusive physical inventory. These records are also valuable in detecting thefts and in indicating when stocks are becoming so low as to need replenishment. If a safe minimum stock is entered at the top of each card or sheet, the clerk in charge can be instructed to notify the purchasing department whenever the supply draws close to this minimum, in order that there may be replenishment in ample time.

Valuation of the Inventory.—Inventories may be valued at cost, or at cost or market whichever is lower. Both of these criteria have the approval of the United States Treasury Department, but a taxpayer may not change from one to the other method without permission of the Commissioner of Internal Revenue. The Income Tax Regulations define cost as follows:

"In the case of merchandise on hand at the beginning of the taxable year, the inventory price of such goods.

"In the case of merchandise purchased since the beginning of the taxable year, the invoice price less trade or other discounts, except strictly cash discounts approximating a fair interest rate, which may be deducted or not at the option of the taxpayer, provided a consistent course is followed. To this net invoice price should be added transportation or other necessary charges incurred in acquiring possession of the goods.

"In the case of merchandise produced by the taxpayer since the beginning of the taxable year, (a) the cost of raw materials and supplies entering into or consumed in connection with the product, (b) expenditures for direct labor, (c) indirect expenses incident to and necessary for the production of the particular article, including in such indirect expenses a reasonable proportion of management expenses, but not including any cost of selling or return on capital, whether by way of interest or profit.

"In any industry in which the usual rules for cost of production are inapplicable, costs may be approximated upon such a basis as may be reasonable and in conformity with trade practice in the particular industry." Among these exceptions are farmers, retail merchants who approximate cost by the "retail method," and miners and manufacturers who "by a single process or uniform series of processes derive a product of two or more kinds, sizes, or grades, the unit cost of which is substantially alike."

This definition of cost corresponds well with the best accounting practice. It is modified by approval of book inventories kept by "a sound accounting system" as showing true cost. Moreover, "Goods taken in the inventory which have been so intermingled that they cannot be identified with specific invoices will be deemed the goods most recently purchased or produced, and the cost thereof will be the actual cost of the goods purchased or produced during the period in which the quantity of goods in the inventory has been acquired." This rule for intermingled goods appears to be sounder than the contention of some accountants that cost should be taken as the latest invoice price, or of others that it should be taken as the average of the prices paid during the period just concluding.

In defining market value, the Income Tax Regulations say:

"Under ordinary circumstances and for normal goods in an inventory, 'market' means the current bid price prevailing at the date of the inventory for the particular merchandise in the volume in which usually purchased by the taxpayer, and is applicable in the cases—

"(a) Of goods purchased and on hand, and

"(b) Of basic elements of cost (materials, labor, and burden) in goods in process of manufacture and in finished goods on hand; exclusive, however, of goods on hand or in process of manufacture for delivery upon firm sales contracts (*i.e.,* those not legally subject to cancellation by either party) at fixed prices entered into before the date of the inventory, which goods must be inventoried at cost.

"Where no open market exists or where quotations are nominal due to stagnant market conditions, the taxpayer must use such evidence of a fair market price at the date or dates nearest the inventory as may be available, such as specific purchases or sales by the taxpayer or others in reasonable volume and made in good faith, or compensation paid for cancellation of contracts for purchase commitments. Where the taxpayer in the regular course of business has offered for sale such merchandise at prices lower than the current prices as above defined, the inventory may be valued at such prices less proper allowance for selling expenses, and the correctness of such prices will be determined by reference to the actual sales of the taxpayer for a reasonable period before and after the date of the inventory. Prices which vary materially from the actual prices so ascertained will not be accepted as reflecting the market."

Whether inventories are valued at cost or at the lower of cost or market, any goods "which are unsalable at normal prices or unusable in the normal way because of damage, imperfections, shop wear, changes of style, odd or broken lots, or other similar causes, including second-hand goods taken in exchange, should be valued at *bona fide* selling prices less cost of selling."

The pricing of inventories on a straight cost basis is a method that can be followed consistently. If market prices are higher than costs, this method is one of conservatism. If, however, market prices have declined below cost, inventories taken at cost will inflate profits and surplus. Dealers in stocks and bonds sometimes value their stocks of securities consistently at the market, a course which is approved for them by the Income Tax Regulations. For the ordinary business, valuation at market when market exceeds cost is a very bad policy; first, because it places on the books an unrealized profit and, second, because it tempts managers to inflate their profits by booking these unrealized profits. It appears, therefore, that the best general rule for valuation of inventories is the lower of cost or market.

In making an inventory for valuation at cost or market whichever is lower, many special points must be considered. The matter of title is of great importance. It is proper to exclude from the inventory goods in transit in, provided title is still vested in the vendor, articles actually sold and awaiting delivery, and merchandise held on consignment in. On the other hand, the inventory should include goods out on consignment, goods in transit between various warehouses or branches of the same organization, and goods in transit in from suppliers if title is vested in the purchaser. The cost of goods out on consignment or at branches or sales agencies may include the cost of transportation out. Merchandise which has been pledged and merchandise out on consignment should be shown in separate categories on the balance sheet, in order that the exact status may be revealed. The value should not include any profits made on inter-departmental transactions, or any so-called "manufacturing profit."

There are generally recognized several exceptions to the rule that inventories should be valued at the lower of cost or market. For instance, if a business is to be sold at a time when market prices are higher than the cost of the inventory, it is but equitable to the seller to value the inventory at market. But blocks of corporation stock are frequently being transferred. It is just as fair that the seller of stock know of the appreciation of the corporate inventory as that the seller of a business write a similar item on his books. So it has been proposed that corporate balance sheets should state their inventories, stipulating that they are valued at the lower of cost or market, and by appended footnote call attention to the fact whenever the market values of the inventories are higher than the figures shown in the statements. Such a plan could entail no harm if the values set forth in the footnote are correct on a conservative interpretation of the market.

In certain phases of the business cycle all intelligent men know that sooner or later prices will fall appreciably. In such a situation conservatism demands that provision be made for a decline in the value of the inventory after the date of the balance sheet. The Income Tax Regulations prohibit taking such an unrealized loss as a deduction from income. The situation can best be met by setting up out of Surplus a Reserve for Fluctuations in Inventory. This procedure will guard the surplus against unwise deductions for dividends, and will not place an unrealized loss upon the books. At the end of the next period the Reserve for Fluctuations in Inventory should be closed into Surplus, unless prices are still declining, in which case the reserve may be continued or increased. The effect of the current market fluctuations will appear in the statement of profit and loss in the period when it actually occurs.

Sometimes is found the practice of "using a constant price or nominal value for so-called normal quantity of materials or goods in stock." In the hands of some of the very large corporations this has been a device of conservatism, the unit values being very low compared to market values. Thus there was set up a "secret reserve" which added materially to financial strength. A similar practice is "taking work in process, or other parts of the inventory, at a nominal price or at less than its proper value." Both of these methods of valuation may work hardship on those stockholders who sell out in ignorance of the true book value of their shares. Both are contrary to the Income Tax Regulations because they tend to minimize profits or to distort the relations of profits to fiscal years.

When physical inventories are taken and priced on summary sheets like Figure 28, the application of the cost or market rule is very simple. In accounting for a market decline on book inventories, it is necessary to make journal entries crediting the inventory accounts and debiting either Manufacturing Expense or Cost of Sales. Such an adjustment is particularly complicated when applied to work in process, although the Treasury Department rulings permit the valuation of work in process at what amounts to reproduction costs, if market prices have gone down. Work in process is therefore most frequently valued at cost, regardless of the market fluctuations.

The principle of valuing inventories at cost or market whichever is lower, is sound because of its conservatism. It is in favor with the Treasury Department largely because it has gained such wide recognition as good accounting. It is easily applied in most cases, although the adjustments it necessitates sometimes preclude its use in connection with work in process. If the rule is adopted and adhered to year in and year out, both balance sheets and income statements are conservative and comparable from period to period.

The Retail Method of Inventory Estimation.—The retail method of inventory has been developed for the use of merchants who keep accurate account of all the elements of their trading. The method, exemplified in Figure 30, is based on the keeping of the records at cost and at retail of the merchandise to be accounted for. The difference between the retail and the cost prices of the merchandise handled during the period is divided by the total retail prices to obtain the per cent of total "mark-on." Values accounted for are kept at retail. When the total accounted for is deducted from the total to be accounted for, both valued at retail, the remainder is the inventory at sales prices as they stand at the end of the period, after all marks-down have been considered. From this inventory at retail is deducted the gross profit estimated on the basis of the per cent of total mark-on previously determined. The result is the inventory at assumed or estimated cost. This assumed cost closely reflects declines in market values as they have affected the total accounted for through the mark-down. On the other hand, this estimated cost will not exceed actual cost. Thus the retail method of estimation has a close relation to the principle of valuation at cost or market whichever is lower.

This method of estimating inventories is acceptable to the Treasury

Department for retail merchants, provided they keep reliable records of original mark-on, of marks-up and marks-down, of returns and allowances of purchases and sales, and of inter-departmental transfers, as well as the more usual records of purchases and of sales. Separate records and calculations must be made for different departments and even for the different sections within a department, or for different lines of goods having different rates of mark-on. General average rates of mark-on might be very misleading. An inventory calculated in this way should be checked at least once a year by a physical count, but the physical inventories of different departments may be taken during different periods, thus distributing the work over the entire fiscal year. In taking the physical inventory only selling prices need be listed because the sum of the selling prices in any section should check with the calculated inventory at retail. Discrepancies must be explained, for they imply theft, loss, or faulty accounting. The retail method of inventory lessens work in the marking department because it makes it unnecessary to place cost prices in code on the price tags. There are several formulæ for estimating the inventory at retail, but they are all alike in their essentials.

		Cost	Retail
Opening Inventory		$10,000.00	$ 20,000.00
Purchases, net of purchase returns		50,000.00	105,000.00
In Freight and Cartage		2,000.00	
Transfers In		3,000.00	5,000.00
Additional Mark-up			2,000.00
Total to be accounted for		$65,000.00	$132,000.00
Total Mark-on or 50.7576% of the retail prices	$67,000.00		
Sales, net of sales returns			$ 98,000.00
Mark-down			7,000.00
Transfers out			2,000.00
Total accounted for at retail			$107,000.00
Closing Inventory at retail			$ 25,000.00
Closing Inventory at cost 49.2424% of $25,000.00		$12,310.60	

FIGURE 30

The Gross Profits Method of Inventory Estimation.—The gross profits method of estimating the inventory is simpler and less accurate than the retail method. From the net sales for the period is deducted a per cent for gross profit, leaving the estimated cost of sales. The rate of gross profit may be the average for several past periods, or the estimated average percentage of mark-on. This estimated cost of sales is deducted from the total to be accounted for to give the estimated closing inventory. The method of making the calculation is illustrated in Figure 31.

The gross profits method is very useful as a means of checking the physical inventory; indeed, it is sometimes held that no physical inventory should be accepted without the use of this check and an adequate explanation of any discrepancy. A second important use of the device is the calculation of interim inventories between closing dates, when an average of the monthly inventories is desired for computing such ratios as the turnover of merchandise. If the fiscal year terminates at a season when inventories are low, this average of the monthly inventories is particularly necessary in order that the calculation of stock turnover may be at all accurate. A third way in which this gross profits method is useful is in case of theft, fire, and tornado losses. In such cases operations frequently have been carried on for some time after the last physical inventory. In the absence of book inventories, the loss has to be approximated. If it is possible to trace through specific articles by means of the sales and purchase records, the exact loss may be determined, but if this tracing is impossible or if its cost is not worth while, the gross profits method may be used. It should not be forgotten, however, that the gross profits system is not satisfactory for making a statement of profit and loss, unless a very rough guess is desired of the profits for a part of the ordinary fiscal period. If proper cost accounts are maintained there will be no need of such a crude estimate of inventories as that made by the gross profits method.

Opening Inventory, at cost			$ 25,000.00
Purchases		$178,000.00	
Less: Purchase Returns	$4,500.00		
Purchase Allowances	1,500.00	6,000.00	172,000.00
Transportation in			3,000.00
Import Duties			5,000.00
Conditioning Merchandise			5,000.00
Total to be Accounted for			$210,000.00
Deduct:			
Net Sales		$285,000.00	
Less 33⅓%, being the average gross profit for the past three years		95,000.00	
Cost of Sales			190,000 00
Estimated Closing Inventory, at cost			$ 20,000.00

FIGURE 31

ESTIMATION OF CLOSING INVENTORY BY GROSS PROFITS METHOD

The Estimate of Goods in Process.—In the absence of a proper system of cost accounting it may be necessary to estimate the value of goods in process. One method available for such situations will be illustrated. Let it be assumed that at June 30, when the books are to be closed, the following information is available:

Inventory of Work in Process, January 1		
Materials in process	$10,000.00	
Labor in process	8,500.00	
Manufacturing Expense in process	8,000.00	$ 26,500.00
Materials Issued, January 1–June 30		99,000.00
Direct Labor, January 1–June 30		125,000.00
Manufacturing Expense, January 1–June 30		118,000.00
		$368,500.00
Cost of Materials in Process, June 30		$ 12,000.00
Work in Process June 30 estimated to be on the average 45% completed		

The estimate of the value of work in process June 30 is made as follows:

WORK IN PROCESS, JANUARY 1 TO JUNE 30

	Materials	Direct Labor	Manufacturing Expense	Totals
a. In Process Jan. 1	$ 10,000.00	$ 8,500.00	$ 8,000.00	$ 26,500.00
b. Issued or put in process, Jan. 1 to June 30	99,000.00	125,000.00	118,000.00	342,000.00
c. Total to be accounted for	$109,000.00	$133,500.00	$126,000.00	$368,500.00
d. In Process June 30	12,000.00	7,040.04[a]	6,644.53[a]	25,684.57
e. Goods Finished, Jan. 1 to June 30	$ 97,000.00	$126,459.96	$119,355.47	$342,815.43

[a] Computed.

In this estimate, lines "a" and "b" simply restate the problem in convenient form, and line "c," obtained by adding the items in lines "a" and "b," gives the total of each element of cost to be accounted for. If the cost of the materials in process January 1 was $10,000.00, and if additional materials costing $99,000.00 were put in process during the period, the total of materials that have been in the factory to be processed from January 1 to June 30 was $109,000.00. Similarly, the total direct labor in goods worked on during the period was $133,500.00, of which $8,500.00 had been expended before January 1. Of this labor an unknown amount will carry over in the goods in process into the next period. Since it is known that the cost of the materials in process June 30 is $12,000.00, the cost of the materials in the goods finished must have been $109,000.00 — $12,000.00, or $97,000.00.

This deduction furnished the figures for lines "d" and "e" in the Materials column. It is also assumed that the work in process is 45 per cent completed. Therefore, the $133,500.00 direct labor to be accounted for has been enough to finish materials which cost $97,000.00 + 45 per cent of $12,000.00, or $97,000.00 + $5,400.00, which is $102,400.00. Dividing $133,500.00 by $102,400.00, it is found that for each dollar's worth of materials in the finished goods the direct labor expended was 1.30371094. Since the work in process was 45 per cent complete, the direct labor in process June 30 was 45 per cent of $12,000.00 times 1.30371094, or $7,040.04. This amount is proved when $97,000.00 is multiplied by 1.30371094, giving a product of $126,459.96. Thus the sum of the labor in process, $7,040.04, and the labor in the finished goods, $126,459.96, is found to be $133,500.00, the total of the direct labor to be accounted for.

In order to find the manufacturing expense in process, it is necessary first to divide $126,000.00 by $102,400.00, obtaining a quotient of 1.23046875. Therefore the manufacturing expense in process is 45 per cent of $12,000.00 times 1.23046875, or $6,644.53. This figure is proved to be correct when it is found that $97,000.00 multiplied by 1.23046875 is $119,355.47, which accounts for the balance of the manufacturing expense. The remaining items in the tabulation may now be entered in lines "d" and "e," giving the goods in process June 30 as $25,684.57, and the cost of manufacture as $342,815.43.

Of course, in an estimate that the goods in process are 45 per cent complete, one is making only the best possible approximation. It is mere pedantry to assume that by carrying out the ratios to eight decimal places one is obtaining an accurate inventory, when the basic per cent may be wrong in the second place. Carrying out ratios to so many decimal places is simply a device for making the figures check to the nearest cent, but there is nothing significant in the cents—indeed, only the first two figures in the estimate can be considered significant.

Temporary Investments.—When stocks, bonds, mortgages, or short-term notes are purchased for the temporary employment of funds which would otherwise be idle, these investments should be placed upon the books at cost, including brokerage. If there is no business reason for retaining these securities indefinitely, and if they are readily salable, they should be classed as current assets. If some or all of these investments have declined in market value at the time of making a balance sheet, the statement will be inflated if they are valued at cost. But no loss has been realized. It is therefore proper to set up a reserve out of surplus to cover the decline. When the securities are sold, the reserve can be closed into surplus, and the loss or gain may be recorded in the appropriate nominal account. Some accountants prefer to indicate the market decline of temporary investments by appending a footnote to the balance sheet rather than by creating a reserve for fluctuations.

Securities purchased on margin should be shown at cost, including brokerage fees, less a reserve for decline in market value if any has taken place. But there should be a liability account for the amount still due the broker, including all of his charges.

Neither treasury stock nor treasury bonds should be grouped with the temporary investments. Such items are not assets at all, but deductions from capital stock or from bonds payable.

Brokers' stocks of securities held for sale are really merchandise and may be valued at cost, or at cost or market whichever is lower, or at market. Such securities ordinarily can be disposed of at very short notice, and their market value at any one time is pretty definitely known. Even in such cases it is generally held that the valuation at market prices which are above cost is lacking in conservatism.

Accrued Assets.—Accrued assets are valued by simple arithmetical calculations. Since such assets are contractual, they should not be listed at all unless it is quite certain that the contract is good and that the obligee is able to make payment when due. If the realization of any accrual is doubtful, a reserve for the possible loss may be added to the Reserve for Bad Debts.

Summary.—The prime criterion in valuing current assets is immediate convertibility into cash within a reasonable period of time. Therefore no item may be considered current unless it is actually owned and unless it has a ready sale, or is itself a cash item.

All items of known worthlessness, such as bad accounts and unsalable merchandise, should be written off ruthlessly. For items of doubtful value, reserves should be established sufficient in amount to take care of whatever losses are probable. It is well to transfer doubtful accounts and notes to a suspense ledger.

All items mortgaged or pledged should be distinctly labeled in the balance sheet. Notes and accounts sold with endorsement or guarantee should appear under a separate head.

If the term Accounts Receivable is used without qualification, it should include only accounts with trade debtors net of valuation reserves. Other receivables should be shown in appropriately named classes.

For a going business, inventories are best valued at the lower of cost or market. If, however, prices are expected to decline, a reserve for the probable loss may be created out of surplus. If perpetual inventories are kept, they should be adjusted regularly to correspond with the physical count. When market values are less than cost, perpetual inventories are adjusted by debiting Manufacturing Expense, Cost of Sales, or Loss from Shrinkage of Inventory, and by crediting the inventory control account and the particular stock records affected.

In case a business is to be sold, the inventories should be valued at market.

Retail merchants may value their inventories by the retail method.

The gross profits method of valuing inventories is available for settling insurance losses, for checking physical inventories, and for calculating interim inventories.

QUESTIONS

1. At the close of business you hold a draft for £1,000, due 60 days after sight. The drawee has authorized the execution of this bill and has agreed to honor it. Consult the financial page of the newspaper and discuss the valuation of this bill for balance sheet purposes.
2. Give the reasons for and against grouping acceptances and notes receivable under the same heading in the balance sheet.
3. You are drafting the balance sheet of a corporation whose bonds are regularly quoted on the New York Stock Exchange. The manager wishes you to show on the balance sheet as a current asset $9,800.00 for ten of these bonds of the corporation. He argues that these bonds are worth that amount as he can dispose of them within an hour at that price. What will you say?
4. In discussing with a bookkeeper a balance sheet which he has just drawn up, you find that he has shown as one item Notes Receivable, $22,700.00. To obtain this sum he added the following: notes of customers, $10,000.00; United States Treasury Notes, $12,500.00; accrued interest on customers' notes, $87.00; and accrued interest on treasury notes, $113.00. What will you say to him?
5. A corporation took an inventory of its stock on December 31, 1930, at which time it was overdrawn at its bank about $25,000.00. It kept its cash book open (as of December 31) for the greater part of January, during which time there was collected from customers over $240,000.00, and $176,000.00 of this was applied to the payment of liabilities in January. State the effect of these January transactions upon the financial showing, and your attitude as auditor in certifying to the statement.
6. If possible, visit a store which is a member of a large chain. Report upon the method of taking physical inventory.
7. Discuss fully the effects of a mistake in inventory, (a) upon the balance sheet at the date of the inventory, (b) upon the balance sheet at the end of the succeeding period, (c) upon the operating statements of the period closing as of the date of the inventory, and (d) upon the operating statements of the succeeding period.
8. Can you explain why the United States Treasury Department, which

accepts the lower of cost or market as a proper basis for the valuation of inventories, disallows, for income tax purposes, deduction from inventories of estimated depreciation or of reserves for price declines?

9. What are the differences, if there are any, between an inventory at sales prices and one by the retail method?
10. On the supposition that the physical inventory takes several days, that in shipments are likely to arrive at any time, and that sales orders are filled the day they are received, outline a plan to insure the accuracy of the physical inventory.

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CHAPTER IV

VALUATION OF FIXED AND DEFERRED ASSETS

The Cost of Fixed Assets.—The reason for valuing current assets at the amount of cash into which they can be converted in a reasonable time is that their very purpose is the obtaining, directly or indirectly through conversion into receivables, of money. Fixed and deferred assets, on the other hand, are procured for use in the business itself until they are exhausted, worn out, or rendered incapable of further economical employment by growing demands, by improved production methods, or by changes in fashions. For this reason fixed and deferred assets are valued at cost less an allowance for proportionate use or proportionate obsolescence. Thus there are two problems in valuing fixed and deferred assets: the determination of cost, and the measurement in dollars of the proportionate use or obsolescence. A third problem is sometimes introduced by the desire to place on the books additional values as revealed by appraisals of those assets whose prices have risen.

Ordinarily the determination of cost is a simple matter. The asset account should be debited with the purchase price, duties, transportation in, the cost of installation and adjustment, and any other expenditures necessary in acquiring title to the property and in fitting it for use. Subsequent expenditures may be charged to the asset account provided they really increase its value. While these two principles are generally accepted, their application to specific cases demands knowledge of the peculiar circumstances, and discriminating thought. The discrimination involves the distinction between capital expenditures and revenue expenditures. Capital expenditures are outlays which increase the values of relatively permanent assets or decrease fixed liabilities, while revenue expenditures are outlays made in order to procure income, and are deductions from net worth. The effect of capital expenditures on net worth is real but indirect, coming as a result of the changed equipment for production or merchandising, or following a reduction of such fixed charges as interest or depreciation.

Even the determination of the first cost of a fixed asset is not always a simple matter. If the asset is acquired for cash, or for cash and purchase money notes, the initial value is the sum of the cash and the notes, but it should not include interest on the deferred payments whether that interest has been added to price in fixing the amount of the notes or accrues currently with the notes. In this case the interest should be charged to expense as it accrues or as the deferment expires. If assets are obtained directly in exchange for bonds, the first cost is usually considered the par value of the bonds given; but if these bonds could be issued for cash only at a discount, it would be more accurate to debit the asset account with the cash value of the bonds and to charge a proper amount to Bond Discount. The same principle applies to the purchase of assets with par value stock, provided the state law permits the issue of stock at less than par. However, if the directors of the corporation, in authorizing the acquisition of the assets for securities, declare their belief that the value of the assets to the corporation is the par value of the securities given in payment, there is no legal ground for questioning their judgment unless fraud can be shown. Many cases of inflation of asset values and related stock watering are concealed by such purchases of plants for stock. Yet as long as the directors have been acting within their rather elastic legal limits of discretion, the accountant is not in a position to dispute such initial values unless he is employed by a regulatory commission, a prospective purchaser, a creditor in case of bankruptcy, or some similar type of client. Even more complicated is the situation if no-par-value stock is given in exchange for the asset. Of course, if similar shares are being issued currently for cash, the prices obtained would be the best basis for judging the cost of the asset. If, on the other hand, the shares are not being issued for cash concurrently with the purchase, market quotations from exchanges on which the stock is active would be a good index. In the absence of such quotations the new assets should be appraised by competent, disinterested persons. Thus the initial value of an asset *should* be fixed at the cash value of what is paid for it, but the accountant is frequently forced to accept the judgment of the board of directors that authorizes the purchase.

Occasionally fixed assets are received as gifts. If the donation is outright, the property may be appraised or valued by its cost to the donor if recently acquired by him. In setting up the asset on the books the contra credit should be to a Capital Surplus or Donated Surplus account. Frequently such gifts are conditional; for example, a town, a "booster" organization, or a real estate speculator may donate a factory site, or even both land and building, on condition that an enterprise locate a plant on the gift and employ a certain minimum of persons for a stipulated number of years. Until such conditions have been satisfied, the donee should carry the asset in a special contingent account at a conservatively appraised value or at the cost to the donor. A contra credit account should be set up, like Reserve for Contingent Donation of Real Estate, or some other appropriate title. When the

conditions have been met fully and the clear title has been obtained, the contingent asset account should be closed into an ordinary asset account, and the reserve into capital surplus. In the case of the contingent gifts, the moving expenses may be carried as a deferred asset until complete title has been obtained; then the deferred account may be closed into the capital surplus.

Just what items may properly be included in first cost is a question that frequently presents itself. For instance, if land is bought for a building site, the cost may include the contract purchase price, taxes assumed at time of purchase, commissions of agents, fees of lawyers, title insurance, cost of razing old buildings, net of salvage from materials, fees incurred in negotiating a mortgage, and expenditures to quiet title or to obtain possession. To these initial expenditures may be added the costs of holding the land until the building is ready for occupancy, such as taxes paid and accrued, interest on mortgage or interest and amortized discount on bonds, cutting weeds, and shoveling snow. But from the day the building is finished all carrying charges should be debited to expense accounts, even if there is a delay in occupying. In addition to these first costs, the land may be charged with improvements and special assessments that really enhance its value, such as filling, grading, draining, paving, and connecting with water mains and sewers. The cost of a building would include the contract price plus "extras," the architect's fees, building permits, water rents, taxes, and interest on bonds or mortgages during construction in case borrowed money is used to pay for the structure. If the building is erected by the owner the cost will have to include the price of the contracts let to outsiders, such as plumbing, wiring, heating systems and the like, materials, direct labor, temporary buildings, and damages to workmen or to others for injuries connected with the enterprise. The first cost of machinery purchased includes invoice price, duties, transportation, installation and adjustment. If machinery or equipment is constructed by the owner, the asset may be charged with all materials and labor used in planning, fabricating, and installing. In connection with construction of buildings or of machinery and equipment by the owner for his own use, it is permissible to debit the asset account with a conservative allowance for "overhead," including some manufacturing expense, or a portion of the administrative expense; but overhead charged to a fixed asset account should never be so great as to make its valuation exceed the price for which it could have been purchased. Such excellent authorities as R. H. Montgomery and Roy B. Kester hold that the safest rule is to charge to a fixed asset account no more overhead than has been actually incurred in its construction, which would mean only the increase in overhead due to construction activities. If the asset has been erected for less than it would have cost if built by a second party or bought from a manufacturer, the difference is a welcome saving, but it should never be capitalized. In determining first costs, cash discounts on assets purchased or on the materials used in construction should be deducted, if cash discounts are deducted from cost of sales; but if cash discounts on purchases are not deducted in determining the cost of sales it seems to be permissible to capitalize the discount and to treat it as an income. The idea unifying this paragraph is that the first cost of any fixed asset may legitimately include all the actual expenditures and liabilities incurred in obtaining the asset and in erecting, installing, or adjusting it ready for use. It is absolutely improper to include in this cost any profit to the owner or any of the costs of ownership subsequent to completion.

After the asset account has been debited with the initial cost or costs, it may be charged with subsequent improvements. It is sometimes difficult to draw the line between betterments and maintenance. Maintenance, or upkeep, is a rather broad term which includes all the costs of keeping an asset fit for its work. Among these costs would be cleaning, lubricating, protecting surfaces as with paint and oil, adjusting, replacing worn parts, and repairing injured or broken members. Proper maintenance unquestionably prolongs the life of assets beyond the period they could serve economically if not given constant care. It follows that the natural life of an asset should be understood to be that experienced under conditions of excellent maintenance, the best maintenance possible without incurring uneconomical expenditures. Repairs and minor replacements are both parts of maintenance. A repair is putting in serviceable condition a part that has been broken, injured, or worn, or that appears liable to breakage or injury unless it is strengthened or adjusted. A replacement is the substitution of an asset or a part of an asset by another asset or part which will perform a similar function. In every business repairs and minor replacements are of frequent occurrence. In well organized plants repairs, replacements, and adjustments are made on such a methodical plan that breakdowns are practically unknown and machines are able to function continuously during usual working hours, many of the maintenance operations being performed at night or on Sundays and holidays. Thus these maintenance expenditures are a part of the routine of efficient production, and are properly charged to expense. When upkeep has been postponed the probable cost of making good the neglect is sometimes spoken of as "deferred maintenance." Deferred maintenance is in no sense an asset; it is an unbooked loss. There is no excuse for capitalizing expenditures for upkeep or maintenance.

If an expenditure results in making an asset operate more efficiently than its best performance previous to the outlay, or prolongs the service life beyond the period to be expected under conditions of excellent maintenance, there is a betterment or an improvement. Betterments are legitimate charges to capital, but the amount of the debit must be scrutinized carefully. The entire expenditure incurred in making some betterments should be charged to the asset account—for example, the cost of erecting a new wing on a building, or the provision of a new attachment for a machine. But if the betterment involves replacement, only the net additional cost is a proper debit to the asset account. For example, suppose that an old attachment is replaced by a new improved one; the entries might be:

Machinery	$75.00	
Cash		$75.00
To record purchase of new attachment for Machine X		
Reserve for Depreciation of Machinery	25.00	
Loss on Scrapping of Assets	25.00	
Machinery		50.00
To record scrapping of old attachment for Machine X.		

In this illustration the new attachment cost $75.00, but it replaced an old asset valued on the books at $25.00. The measure of betterment was, therefore, $50.00. There was also a loss of $25.00 incurred by retiring an asset before it had completely depreciated. Of course such a loss might be diminished by the amount of any salvage obtained. Similarly, any major replacement is apt to involve betterment if the cost of the new asset exceeds the book value of the one retired.

The valuation of betterments, however, demands common sense in the application of the rule. Suppose, for example, a faucet which cost $2.75 is replaced by a new one that automatically shuts off the flow of water when released. The new faucet may have cost $4.50 installed, the plumber having carried away the old one. There is betterment of $1.75 if depreciation is ignored. It would hardly be worth while to account for this transaction in such a way as to show a net increase of $1.75 in the value of the building. On the other hand, if all the faucets in a large office building are thus changed, involving hundreds of dollars, there would be no doubt of the desirability of making the proper debits to the building account. Thus a small betterment, insignificant in amount, is best charged to current expense, but a large item should be added to the asset. Just where to draw the line is a matter of common sense applied to the circumstances of the business. Roy B. Kester suggests that all expenditures under $5.00 be charged to expense, but that outlays of $5.00 or more be considered, and that they be charged to asset accounts in case there is real betterment. One large telephone company charges to maintenance any alterations of its wires costing less than $200.00, but if the alteration expenditure exceeds that amount the outlay is apportioned between capital and revenue.

One manner of capitalizing an expenditure is to debit a reserve for depreciation; for example, a taxicab company runs its cars approximately fifty thousand miles, after which it practically rebuilds the engines. The expense of this rebuilding is charged to the reserve for depreciation. Since this debit is to an asset valuation account it is equivalent to a charge to the asset account, or to a capitalization of the outlay. While such a proceeding is usually considered a proper charge to the asset, it is not legitimate unless the depreciation reserve has been created on a basis great enough to permit the absorption of this charge without such shrinkage as will make the reserve insufficient at the time the asset must be retired. Sometimes maintenance equalization reserve accounts are kept for the express purpose of spreading maintenance costs over the service life of the assets.

In order that distinctions between capital and revenue expenditures may be made properly, it is necessary to have a "plant ledger" or a record of each fixed asset. The record should show the original cost and each betterment, the amounts set aside for depreciation each period and the basis for calculation of these amounts, the residual value at the end of each period, and the disposal of the asset. Other information concerning the cost of maintenance, the output, and the behavior of the asset may be included for statistical purposes. Such records help in establishing depreciation rates, furnish a check on the general ledger accounts, and preserve the detailed reasons for charges to capital accounts.

When rearrangements of machinery or equipment are made to cut costs, there is often a desire to capitalize the expenditure. When such rearrangements are frequent and temporary in nature, like the shifting of sections in department stores, the cost is a current expense. If, however, the new locations are relatively permanent and the change does actually lower costs, the outlay may be capitalized. It seems to be generally agreed that such expenditures should not be charged to fixed asset accounts, but should be considered a deferred asset and written off rapidly into current expenses.

In this discussion of the cost of assets there has been no attempt to consider anything except the distinction between capital expenditures and revenue expenditures or expenses. The general principle is clear: it is proper to debit asset accounts with the initial cost of assets, with the outlays for entirely new improvements, and with the excess of the cost of replacements over the book value of the items replaced. The application of this principle demands common sense and an exact knowledge of the case at issue.

Depreciation.—Fixed assets are not acquired to be converted into cash in any ordinary sense. They are bought to be used in converting raw materials into finished goods, in facilitating sales, or in rendering services. Therefore fixed assets should be employed as long as they render economical service. Economy of service is reduced by exhaustion of the asset, by wearing out, by the action of the elements, by the growth of the business beyond the capacity of the asset, and by new demands or new methods of production. Exhaustion of natural resources is called depletion, and is treated in the next section. Wear and tear and damage by the elements is known as physical depreciation. The state of an asset which may be working as well as ever but which lacks the capacity to fill enlarged demands is termed inadequacy. Obsolescence is the state of an asset which may be physically efficient, but which is unable to produce the type of service wanted because of changing demand, or which is antiquated by improved machinery or methods. In its broader use "depreciation" covers physical depreciation, obsolescence, and inadequacy. Fixed assets cannot be valued without considering depletion and depreciation.

Ordinarily, depreciation is measured by the straight-line method. The initial cost of the asset less what is believed will be its scrap value upon retirement is called "total depreciation." The depreciation for any period is found by dividing the total depreciation by the number of periods of service life expected from the asset. This periodic depreciation times the number of periods since the acquisition of the asset is called "accrued depreciation." Depreciation ceases when the "accrued depreciation" equals the total depreciation. Other methods of measuring depreciation are discussed in Chapter XXVIII. Whatever the measure, accrued depreciation of any asset is the sum of the allowances for depreciation of that asset for each of the periods since its acquisition. Of course depreciation does not accrue as do contractual assets and liabilities—a better term would be "accumulated" depreciation. The essential point is that the book value of an asset is the difference between the cost and the accrued or accumulated depreciation. This is true because the accrued depreciation is the estimated loss of value from use, inadequacy, or obsolescence. Since fixed assets are obtained for the service they can render, and consequently are not to be regarded as merchandise, there is no necessary relation in any particular period between the accounting depreciation and the decline in resale value. There is, however, an attempt to make the total depreciation equal the difference between cost and what the asset will bring as scrap at its retirement. If it is assumed that the scrap value will be zero, and if the asset lasts as long as expected, total depreciation will fully equal the decline in resale value during the entire life of the asset. Spreading the total depreciation over all of the periods with approximate equality is most equitable as far as measuring costs of operation is concerned. Therefore, the best accounting pays no attention to fluctuations in the market value of the fixed assets of a going concern, but makes regular allowance for depreciation on the best available estimate of probable service life, and values the assets at cost less depreciation accumulated on this basis.

It should be noted also that accounting depreciation ordinarily bears little relation to the decline in productive efficiency. A machine may be discarded when its mechanical efficiency has decreased five per cent. At that time its accounting value will have decreased one hundred per cent; that is, it will be totally depreciated. Another machine may be retired when in perfect operating condition because it has been superseded by later inventions; mechanically it is one-hundred-per-cent efficient, but from the point of view of the accountant it is one-hundred-per-cent obsolete. This again illustrates the principle that, in the eyes of the accountant, depreciation should be spread uniformly over the productive life of the asset.

Even in cases where the straight-line method of measuring depreciation has been adopted, the periodic depreciation of an asset may not be constant; suppose, for example, a machine is purchased and installed at a cost of $1,200.00. Its estimated service life is twenty years and the estimated scrap value is zero. The annual allowance for depreciation will be $60.00. After five years there will be $300.00 in the depreciation reserve. At the beginning of the sixth year an improvement costing $450.00 is installed on the machine, but no lengthening of life is anticipated. After the betterment the asset account will show a total cost of $1,650.00 and the depreciation reserve account will amount to $300.00. Thus the remaining value to be depreciated is $1,350.00, which must be spread over the fifteen years left for service. Therefore, beginning with the sixth year the annual allowance for depreciation on this machine will be $90.00. This illustrates the point that every time a betterment is charged to an asset account there will be some change in the periodical allowance for depreciation. The new allowance will be based on the difference between the total cost less the depreciation so far accumulated, that is, the book value and the anticipated scrap value. This difference will be the remaining total to be depreciated. This total depreciation will be apportioned over the remaining periods in the life of the asset according to the method adopted for measuring depreciation.

Similarly, the discovery that the service life of the asset has been mistakenly estimated necessitates a change in the periodic allowance. Assume, for illustration, that the original cost of an asset was $3,000.00 and its life was estimated at twenty years. Assuming a scrap value of zero, the annual allowance for depreciation would be $150.00. After five years the depreciation reserve would be $750.00. At this juncture it is discovered that the total life of the asset will be fifteen years. Since $3,000.00 divided by 15 is $200.00, the annual depreciation should have been set at $200.00. Therefore, each of the preceding five years has been charged with $50.00 too little for depreciation expense; in other words, each of the preceding five years' profits have appeared to be $50.00 larger than the fact. It being foolish to go back and reopen the books for each of these periods, an adjustment may be made to the surplus account, thus:

Surplus	$250.00	
Reserve for Depreciation		$250.00
To adjust Surplus and Reserve for Depreciation for amount of underestimation of depreciation of __________ for five years at $50.00 per year.		

Subsequently the annual allowance for depreciation will be $200.00. Thus, if the service life of an asset has been misestimated, when the mistake is discovered the ideal adjustment is made to affect the Depreciation Reserve and the Surplus by an amount equal to the difference between the sum actually accumulated in the reserve and the total which should have been accumulated on the basis of the revised estimate of life. In practice this ideal adjustment is seldom made because the United States Income Tax Regulations provide: "If it develops that the useful life of the property will be longer or shorter than the useful life as originally estimated under all the then known facts, the portion of the cost or other basis of the property not already provided for through depreciation allowable determined in accordance with the useful life of the property as originally estimated, should be spread over the remaining life of the property as reestimated in the light of the subsequent facts, and depreciation deductions taken accordingly." This rule permits no such adjustment as was proposed in the first part of this paragraph. According to the assumptions there made, the book value after the first five years' service would have been $2,250.00; hence, the correction, according to the regulation, would be made by charging to depreciation in each subsequent year one-tenth of that sum, or $225.00. The rule prescribed by the Treasury Department is the proper one to follow in practice even though it falls short of the strictest accounting standards of accuracy.

The estimate of the useful life of an asset should be the result of a consideration of all the available data. Many tables are compiled from the experience of engineers and accountants to give the average life of different types of assets; moreover, there have been many rulings of the Treasury Department in passing on the claims of taxpayers for deductions on account of depreciation. Such lists and rulings are an excellent basis for estimating the probable life of a particular asset. It must be remembered, however, that many circumstances connected with the installation, the environment, and the manner of using the asset have their effect. Perhaps as important as any one element is the adequacy of the maintenance. The estimate of life, therefore, must be influenced by local factors. For example, a tenant frequently erects a building on rented land or installs fixtures in a rented store. If these assets of the tenant become the property of the landlord at the expiration of the lease, their services are limited to the duration of that contract, and depreciation should be at such a rate as to write off the entire value of the asset in that time. The rates of depreciation should be varied somewhat from period to period as unusual circumstances arise. In a year of abnormally heavy production the depreciation may be considered greater than in an average year, and particularly small production should somewhat lessen depreciation. This holds provided wear and tear is the principal cause of depreciation, but in other cases the action of the elements is the dominant factor.

In some instances it is impossible to estimate life. Patterns may be very costly to create, but most uncertain in usability; and for this reason they should be charged whenever possible to the job for which they are made. If this is not feasible, the rate of depreciation should be extremely high. Another trouble maker is tools. Because they may be worn out so rapidly and because they are so apt to be stolen, tools are frequently inventoried yearly, and the inventory is accepted as the correct value for the balance sheet. Another method is to charge purchases of tools to an asset account for the first two years of operation, and thereafter to treat all tools bought as expense. This device is simple, but the values so obtained should be checked by occasional inventories.

The importance of a correct measure of depreciation can hardly be overestimated. Unless the fixed assets are valued with the greatest possible accuracy, the balance sheet will be a misstatement and the income account will be incorrect. If depreciation is understated, the surplus will be inflated; if it is overestimated, there will arise secret reserves, that is, the whole strength of the organization will not appear on its balance sheet. It is therefore incumbent on the accountant to use the utmost care in calculating depreciation, and to revise his rates often enough to bring his valuations closely in accord with the principle of proportionate use. The sound valuation of fixed assets is not so much a matter of elaboration of rules as of intelligent discrimination between capital and revenue expenditures, and of a conservative allowance for depreciation based on the best available life estimates.

Depletion.—In the ordinary sense, land does not depreciate. Such fixtures on land as buildings, fences, drainage systems, and orchards do depreciate, but what happens to the land is called depletion. Where agriculture is scientifically conducted the depletion of the land will be negligible; indeed, the soil may improve from year to year. Depletion is the withdrawal from the land of some irreplaceable natural resource. The most widely recognized examples of assets subject to depletion are timber lands, coal and mineral mines, and oil and gas wells, but there are many other natural resources which suffer depletion. For example, there are large tracts in New Mexico which formerly were tilled fruitfully, being irrigated with water from wells; today crops are impossible there because the age-long accumulations of underground water have been practically exhausted. Among the resources recognized by the Treasury Department as subject to depletion are: "such non-metallic substances as abrasives, asbestos, asphaltum, barytes, borax, building stone, cement rock, clay, crushed stone, feldspar, flourspar, fuller's earth, graphite, gravel, gypsum, limestone, magnesite, marl, mica, mineral pigments, peat, potash, precious stones, refractories, rock phosphate, salt, sand, silica, slate, soapstone, soda, sulphur, and talc." Of all these resources timber alone can be replaced by aid of the activity of man, and the citizens of the United States are just beginning to be taught the necessity of such replacement.

When land is being stripped of its resources it is necessary to make adequate adjustments for depletion. The allowance should be calculated on the full value of the land, which includes the cost of stripping preparatory to mining or quarrying. If the surface will be valuable after the extraction has been completed, the total to be depleted is the full cost minus the estimated residual surface value. In quarries, gravel pits, and strip mines the soil is usually left in such shape as to be valueless for generations to come. Having determined the total to be depleted, the next step is to estimate the content of the resource. This is an engineering problem of great difficulty, although methods of approximation are being improved constantly. If the total to be depleted is divided by the estimated number of extractable units of the resource, the quotient will be the depletion per unit removed. For example, suppose a deposit of granite has been purchased and prepared for quarrying at a cost of $45,000.00. It appears to contain

2,000,000 cubic feet of good stone, but there is a loss of 25 per cent in extracting. Divide $45,000.00 by 1,500,000 to obtain $.03, the proper depletion allowance per cubic foot of good stone removed. Thus, if 100,000 cubic feet of granite are quarried in some period, the depletion for that time will be $3,000.00. If subsequent discoveries reveal more extractable units than the original estimate, the rate of depletion should be changed to correspond with the latest information. Suppose that the quarry in the preceding example had been worked for five years, during which 500,000 cubic feet of marketable stone had been removed, and $15,000.00 allowed for depletion. At the beginning of the sixth year an investigation reveals that there are still 4,000,000 cubic feet gross of granite in the quarry, or 3,000,000 cubic feet extractable. The new depletion rate will be $.01 per cubic foot. In short, the rate of depletion should be such as to make allowance equal to the original full cost of the deposit by the time the resource is exhausted.

The entry on the books for the depletion allowance will be a debit to Depletion and a credit either to Reserve for Depletion or directly to the asset account, the reserve being preferable. It is well recognized that corporations that own wasting assets may declare dividends in excess of their profits by the amount of the depletion for the period. Whenever such dividends are paid, the stockholders should be informed exactly how much of the dividend is profit distribution and how much is capital returned. In the absence of some calamity, by the time the resource has been written off the books, that is, completely depleted, the stockholders will have received back their initial investment. In cases where capital is thus returned the part of each dividend which is not chargeable to Surplus should be debited to a stock valuation account with some such title as Return of Capital or Liquidation of Investment. Many mining companies are seeking permanence of existence. One way to achieve this is to set aside periodically an amount equal to the depletion in a Wasting Asset Replacement Fund. If such a fund is accumulated, it will be available to buy new mines as the old give out, thus maintaining intact the investment of the stockholders. Incidentally, it should be remarked that the life of fixed assets used in extracting natural resources is limited to the life of the resource, and so depreciation should proceed at rates paralleling the allowance for depletion.

The method of allowing for depletion just outlined is in harmony with the Income Tax Regulations. It should be noted, however, that properties owned March 1, 1913, may be depleted or depreciated on the basis of their value at that date if such value was greater than cost. Moreover, if minerals are discovered on land so as to enhance greatly the value of that land, the owner is permitted to write up his land to "fair market value" and to take depletion on such amount. A fair market value "is that amount which would induce a willing seller to sell and a willing buyer to purchase." As evidence of what is fair market value, the Commissioner will give weight to "cost, actual sales and transfers of similar properties, market value of stock or shares, royalties and rentals, value fixed by the owner for purpose of the capital stock tax, valuation for local or state taxation, partnership accountings, records of litigation in which the value of the property was in question, the amount at which the property may have been inventoried in probate court, and, in the absence of better evidence, disinterested appraisals by approved methods." In case no better means of valuation are available, analytic methods may be used, such as the determination of the present value of the expected net profits. It appears that this possibility of taking depletion on a "discovery value" is a legalized method of reducing income taxes because the owner writing up his land is not required to report this enhancement of value as gross income. Sound economics and sound accounting would dictate the calculation of depletion on the basis of cost. If the owner of a natural deposit wishes to be able to replace that wasting asset upon its exhaustion, he may set aside as large a fund as he believes necessary, regardless of whether he is calculating depletion on the basis of cost or of "fair market value."

Fluctuations of Market Value of Fixed Assets.—Since fixed assets are acquired for use in the business and not for resale, the accountant ordinarily ignores the market fluctuations of their values. With the exception of site or farm land, all of these assets are being reduced toward a zero carrying value by regular allowances for depreciation or depletion. No matter if the market values fall, the assets are there, rendering their service just as before; if market values go up, capital costs are lower than they would be if the plant had to be replaced after the increment, and thus the gain may appear in the operating profits. Therefore, since fixed assets have been placed upon the books at cost, and since proper allowances are being made for depletion and depreciation, the accounts are on a sound basis, and the balance sheet truly represents values to the going concern.

Market fluctuations, however, cannot be ignored permanently and absolutely. Suppose, for illustration, that a store, which has an excellent location in a city, is confronted with a shift of retail trade toward the new residential districts. Looking ahead, the managers will see that the problem of moving will have to be faced ultimately. When that day comes the value of the present site will be important in considering how much additional capital will have to be raised for the change. For this and kindred reasons it may be illuminating to append a footnote to a balance sheet to indicate the changes in the market value of the site. Such footnotes sometimes favorably affect the credit of organizations.

If a plant or a business is to be sold, or if an issue of mortgage bonds is desirable, it may be good business to place upon the books the increment in the value of the real estate and possibly of other assets. At times it may seem desirable to incorporate these increments on the books, merely to inform the stockholders in distant parts of the enhancement of their property's worth. If these increases of value can be placed in the accounts without showing any unrealized profit, the action is generally considered legitimate. This condition is fulfilled if the contra credit is to a valuation account rather than to either Profit and Loss or Surplus. For illustration, assume that a building which cost $50,000.00 and which is 30 per cent depreciated on the books stands on a site which cost $20,000.00. A disinterested appraisal shows the lot to be worth $30,000.00 and makes it appear that it would cost $75,000.00 to duplicate the building new. If it is desired to incorporate the results of this assumed conservative appraisal in the books, the entries would be as follows:

Land	$10,000.00	
Reserve for Enhancement of Values by Appraisal		$10,000.00
To write upon the books the increment of the value of the land as appraised by ________.		
Building	25,000.00	
Reserve for Depreciation of Building		7,500.00
Reserve for Enhancement of Values by Appraisal		17,500.00
To write upon the books the increment of the value of the building as appraised by ________.		

By making the entry in this form, there is no chance of an inflated profit account. Moreover, since the increment does not find its way into Surplus, the appraisal cannot be made the reason for a distribution of unearned dividends. There will be time enough to carry the net gain into Surplus when the real estate is sold. Even then the credit should be to Capital Surplus in order to stand as a warning against unwise, albeit legal, dividend distributions. Finally, it should be noted that the Reserve for Depreciation of Building is raised to the proportionate share of the reproduction cost used up. It is possible that the appraisers would find the accrued depreciation relatively higher or lower than that on the books, and such a finding would vary the adjustment. While accountants would rather leave the fixed assets at cost, they cannot object strenuously to such valuation adjustments as do not inflate profits and surplus with unrealized increments.

If appraisals are thus written on the books, it is necessary to devise a method of handling depreciation that will not exaggerate the expense, for as a matter of good accounting and in order to conform to income tax regulations depreciation should be based on cost rather than on higher appraised values. Therefore, after the appraisal is entered, the charges to depreciation should be the same as before, but the credits to Reserve for Depreciation should be proportionately increased, the excessive credit being counterbalanced by a charge to the Reserve for Enhancement of Values by Appraisal. To illustrate the procedure, refer to the example in the preceding paragraph. Suppose that the allowance for depreciation had been at the rate of 3 per cent per annum. Before the appraisal the annual depreciation entry would have been:

Depreciation on Building	$1,500.00	
Reserve for Depreciation of Building		$1,500.00
To record depreciation on building at 3% per annum on cost of $50,000.00.		

After the appraisal the annual depreciation entry would be:

Depreciation on Building	$1,500.00	
Reserve for Enhancement of Values by Appraisal	750.00	
Reserve for Depreciation of Building		$2,250.00
To record depreciation on building at 3% per annum on appraised value of $75,000.00, but to charge the depreciation on that part of the value in excess of cost against the reserve for enhancement of values by appraisal.		

If this method is followed consistently, by the time the asset reaches the end of its estimated life, the entire Reserve for Enhancement of Values by Appraisal will have been written off into the Reserve for Depreciation, the Reserve for Depreciation will equal the appraised value of the asset less the scrap value forecast, and the total charges to Depreciation during the life of the asset will have just equaled the cost less estimated scrap value.

Under the Income Tax Law it was permissible for businesses to write up assets to their fair value as of March 1, 1913, and to take depreciation on this value. For such businesses as have this type of appraised values still on the books, the Depreciation account should be charged with an allowance based on the appraised value, and the Reserve for Depreciation should be credited with the same amount. An adjustment should then be made debiting Reserve for Enhancement of Values by Appraisal and crediting Surplus with the amount by which the depreciation charged exceeds what would have been charged had the allowance been calculated on a cost basis. Referring to the illustration in the preceding paragraph, if the appraisal had been made as of March 1, 1913, the annual depreciation entries would have been:

Depreciation	$2,250.00	
Reserve for Depreciation of Building		$2,250.00
To record depreciation on building at 3% of the appraised value as of March 1, 1913.		
Reserve for Enhancement of Values by Appraisal	750.00	
Surplus		750.00
To transfer to Surplus a part of the reserve for enhancement of values by appraisal equal to the excess of the depreciation entered over what depreciation would have been if calculated on the basis of cost.		

This type of adjustment inflates costs, but makes up by the credit to surplus the amount by which actual profits are falsified in the excess depreciation. There appears to be no practical remedy for this situation because the income tax returns are required to be in harmony with the books.

Public Utility Valuations.—The principles of valuation for industrial and manufacturing concerns are based upon the belief that true worth of fixed assets is full actual cost minus an allowance for depreciation or depletion based on cost. In their efforts to obtain permission to charge higher rates or to issue additional securities, some of the managers of public utilities appear to have thrown these principles to the winds. Commissions and courts have varied so much in their decisions that great confusion prevails. In the famous case of Smyth *vs.* Ames, decided in 1898, the United States Supreme Court held that "The basis of all calculations as to the reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public. And in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration, and are to be given such weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property. What the company is entitled to is a fair return upon the value of that which it employs for the public convenience." A glance shows that these bases are numerous and partly contradictory. The "original cost of construction" plus "the amount expended in permanent improvements" would mean a cost basis of valuation, such as has been described in the first section of this chapter. That seems to have been the main criterion of value adopted by the courts while prices were falling. But since the trend of prices became gradually upward with the beginning of the twentieth century, the courts have seemed more and more inclined to accept as the main basis of valuation "the present cost of construction," or replacement value. This is often interpreted as the cost of construction based on a ten-year average of prices. In fixing values on a replacement basis, account is taken of depreciation, but even then the values set allow the utilities returns on more than the actual investment of the stockholders. When commissions pass on petitions to issue securities, cost is generally the basis of valuation, because these bodies seek to prevent overcapitalization. But when a municipality is seeking to purchase a utility under some clause in its charter, reproduction cost is usually the criterion of worth.

The reason for these departures from what are the generally established principles of value is patent. Since their rates are regulated to give a reasonable return on the fair value, the utilities seek to make that fair value appear as high as possible in order to secure the maximum profits. This they can do because they are monopolistic. Moreover, the higher the value is made to seem, the less likely is the public to be critical of large net earnings.

Secret Reserves.—What are called secret reserves exist whenever assets are placed on the books at less than their cost, when valuation reserves are purposely overstated, or when liabilities are exaggerated. A corporation with a secret reserve is in a better financial position than its balance sheet discloses. This is considered desirable because it is ultra-conservative as opposed to the more usual American tendency to be overoptimistic. Unusual losses may be absorbed in a secret reserve without being betrayed to the general public.

The genesis of secret reserves is not always mere conservatism. Betterments may be charged to revenue, or depreciation may be overstated in order to escape income taxes legitimately due. Moreover, if the financial condition of a business is made to appear worse than the facts warrant, stockholders who are not on "the inside" may sell their holdings at unreasonably low prices. Because of such possibilities of abuse, and because it is the goal of accounting to reveal the truth, the secret reserve is ordinarily to be condemned.

Deferred Assets.—Deferred assets are usually classed by themselves. In a going concern the prepayments for such services as rent, insurance, and interest are usually valued by prorating. Factory supplies, office supplies, advertising materials on hand, and similar items are generally valued by the inventory method at cost, care being taken to eliminate obsolete and defective items. Such inventories are frequently referred to as "expense inventories." Although they are best shown under the deferred title, these expense inventories are sometimes grouped with the current assets. If they are relatively small in amount, no harm is done by such a procedure.

There are some deferred assets that may be of long duration. The most common examples of such deferments are leaseholds and discounts on bonds. If a lump sum is paid in advance for a leasehold extending over a considerable period, this prepayment is properly classed as a deferred asset. It should be written down each year on a straight-line basis, the debit being to Rent. Sometimes leaseholds are reduced by methods involving compound interest, but such calculations are generally needless refinement and imply credits to interest account when there is no interest received or receivable, or else they make the rental expense uneven from year to year. The valuation of discount on bonds will be discussed in the following chapter. Some accountants hold that only such long-lived items as are suggested in this paragraph should be called deferred. They would characterize the items mentioned in the preceding paragraph as "Prepayments."

Summary.—The valuation of fixed and deferred assets simmers down to a determination of real cost and a calculation of proportionate use. In general, first cost consists of all the outlays necessary to obtain an asset and to install and adjust it in condition to use. The asset account is legitimately debited with true improvements or betterments after deducting from their cost the book value of the assets retired. All maintenance, even that which enables the assets to serve longer, should be debited to expense.

Depreciation and depletion are decreases of asset values. The calculation of these decreases should be based on the cost of the assets less estimated scrap value, and should recognize the estimated service life or the estimated number of units to be produced.

The general principles of valuation are modified for the sake of business advantage, examples being the calculation of depreciation on March 1, 1913, values rather than cost in order to lower income taxes, and the raising of values by public utility companies to secure higher profits.

While it is usually considered bad accounting to change the values of fixed assets on the books because of market fluctuations, some exigencies, like the sale of the business or the issue of bonds, may make it desirable to include in the asset accounts value increments as revealed by conservative appraisals. This may be done without inflating either profits or surplus. When appraisals are thus incorporated in the books, care must be exercised in handling the future allowances for depreciation or depletion.

Deferred assets are valued either by inventory or on the principle of proportionate use.

Although secret reserves lend stability, they are in general undesirable because of the misrepresentation of the condition of a business.

Keen, honest, common-sense analysis of any individual problem will generally lead to sound valuation of fixed assets if the principle of actual cost less allowance for proportionate use is kept in mind.

QUESTIONS

1. How do you draw the line between capital expenditures and revenue expenditures?
2. How do valuations in the balance sheet affect the operating statements?
3. Supposing ample allowances for depreciation of all fixed assets are made whenever the books are adjusted, will anything further have to be done to provide for the replacement of the assets as they wear out?
4. Why should the costs of rearranging machinery to cut costs be charged to a deferred asset account rather than to Machinery?
5. From the newspaper accounts of some recent public utility case in your state, prepare a report of the theories advocated for valuation for rate-making purposes by the lawyers of the utility concerned and by the public service commission or other regulatory body.
6. From newspaper accounts or other available sources of information, discover how public utilities are valued in your state for purposes of taxation. Make a comparison of the theory of valuing for taxation with the theory of valuing for rate making. Explain any differences you may note.
7. A corporation purchased the plant of a competitor for $100,000.00 in cash and capital stock having a par value of $100,000.00 which was issued for the transaction. There was no thought of goodwill, but the cash value of the plant would probably have been about $150,000.00. On what basis should the depreciation be calculated?
8. A building which originally cost $100,000.00 has been in use for ten years, depreciation having been charged annually at the rate of 3 per cent. This building is appraised as being reproducible new for $135,000.00 and as having a sound value, that is depreciated value, of $108,000.00. Give the entries to incorporate the appraised value in the books. Give the entries for depreciation for the year ending twelve months after the appraisal, the books being adjusted annually.
9. A machine was purchased for $18,000.00 and was depreciated annually for five years on the supposition that it would serve fifteen years in all. After the books had been closed at the end of the fifth year, it was discovered that the total life of the machine would be twelve years. Show the adjustment that should be made according to the most accurate theory of valuation, and show also the entry for depreciation on this machine at the end of the sixth year that harmonizes with this theory. Then show the depreciation entry for this machine at the end

of the sixth year according to the rule laid down in the Income Tax Regulations. Why does the Treasury Department enforce this rule?

10. Compare and contrast: depreciation and depletion; fixed assets and deferred assets; repairs and replacements; depreciation and market fluctuation; accrued depreciation and deferred maintenance.
11. In what sense is it true that fixed assets are really only one variety of deferred assets?

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CHAPTER V

OTHER ASSET VALUATION PROBLEMS

The Valuation of Investments.—There are two essential characteristics of "investment," as the term is used in this chapter: the first is the placing of capital or of funds in an asset which is not to be used by the investor either in conducting his business or for personal consumption; the second is the expectation of an income from this asset and of indefinite possession or of eventual recovery of the funds invested. The asset which is the object of the investment may be a material thing, such as land held for a rise in value, or a right against some particular person or organization, such as a loan, or a share in an enterprise through stock ownership, advances, or outright capital contributions. A special partner's share in the net worth of a limited partnership is an investment from the point of view of the partner: to him it is an asset. From the point of view of the partnership, however, neither the cash which its member contributed nor the place of business, the equipment, nor the merchandise used in operating is an investment; but if the partnership buys Liberty Bonds, it too has an investment. The expected income may be interest, shares of profit, dividends, rents, royalties, or an increase of the value of property held as a speculation. Thus it appears that the variety of possible investments is considerable. Most of this chapter will be devoted to a discussion of the valuation of some of the most common forms of investments.

Land.—When a business organization buys land to hold for future expansion, this real estate is an investment just as much as if it is bought for later sale at a profit. In either case there is involved a speculative element. In either case the land account might be charged with the full purchase cost, and also with interest paid on the mortgage, taxes, and other carrying charges, and with special assessments or improvements. Thus, if the tract is sold, the profit or loss will appear clearly; or if later the owner erects a yard or building on the plot, the entire cost, including the expense of holding, can be charged legitimately to the site land account, for the location might have been lost altogether or been raised to a very high price if it had not been purchased early and held. Each plot or tract of land owned, whether used as a business site or kept in reserve for growth or held frankly for speculation, should be recorded on the books in a separate account.

Only those tracts in use by the business should be classed as fixed assets, the remainder being grouped with the investments. If the full cost of investment land exceeds its market value, there should be set up a reserve equal to the inflation. It should be noted that the Income Tax Regulations prohibit adding interest and taxes, paid as carrying charges after August 6, 1931, to the cost of unproductive land for the purpose of computing the taxable gain or loss upon the sale of that land.

Bonds.—Bonds are bought as permanent investments mainly by fiduciary organizations, such as savings banks, insurance companies, and executors and trusts, although other businesses do make such purchases. Bonds should be debited to the investment accounts at cost, including brokerage and premium if there are any. If the price paid includes accrued interest, the simplest way is to charge the accrual to the account which is to be credited with the interest received on the bonds. Thus, when the first interest is collected and entered on the income account, the balance of that account will be the net cash interest earned during the period from the purchase of the bond to the maturity of the coupon. There should be a separate asset account for each issue of bonds purchased in order that complete records may be available, and, if there are several purchases of the same issue at different yields, there should be separate accounts for each purchase.

If the bonds are bought at par, the actual yield will be the contractual rate of interest. If, however, there is a premium or a discount, the effective or yield rate of bonds bought to hold to maturity will differ from the contractual rate. The rate of yield is usually determined from a "bond table" or "basis book," a sample page of which would be like Figure 32. Suppose that a bond bearing 5% interest payable semiannually and having four years to run is bought for $1,036.63, the par value being $1,000.00. To find the yield one would look in the table among 5% bonds until he located the four-year column. He would follow this column down the page until he reached the figure 1,036,627.41. He would find this price of a $1,000,000.00 bond on the line for a net income of 4%, and he would conclude that the yield of the $1,000.00 investment priced at $1,036.63 would be 4% per annum. The case is not always so simple, however, so suppose that the price of this four-year 5% bond is $1,037.38. This figure does not appear at all in the four-year column, but one finds the price of a $1,000,000.00 bond to yield 4.00% is $1,036,627.41, and the price to yield 3.95% is $1,038,500.25. Each of these prices must be divided by 1,000 to be applicable to a bond whose par value is $1,000.00. Therefore the price to yield 4% on a $1,000.00 bond would be $1,036.62741 and that to yield 3.95% would be $1,038.50025. Evidently

the yield of the bond purchased at $1,037.38 is somewhere between 3.95% and 4.00%. The approximate yield is found as follows:

1,038.500 25	the price to yield 3.95% (or 0.0395)
− 1,036.627 41	the price to yield 4.00% (or 0.0400)
1.872 84	the difference in price for a difference of 0.05% (0.0005) in yield.
1,038.500 25	the price to yield 3.95% (or 0.0395)
− 1,037.38	the price paid for the bond
1.120 25	the difference between the price to yield 3.95% and the actual price of the bond.

Then the actual yield is found thus:

$$\text{Yield} = 0.0395 + (0.0005)\,\frac{1.120\ 25}{1.872\ 84} = 0.0395 + 0.0003 = 0.0398, \text{ or } 3.98\%.$$

The general formula for interpolation in the bond table to determine the yield of a bond is as follows:

Let P represent the price of the bond
Y represent the yield of the bond, expressed as a per cent per annum
Y_1 represent the yield in the bond table lower than the actual yield of the bond in question
Y_2 represent the yield in the bond table higher than the actual yield of the bond in question
P_1 represent the price in the bond table for yield Y_1
P_2 represent the price in the bond table for yield Y_2
then

$$Y = Y_1 + (Y_2 - Y_1)\,\frac{P_1 - P}{P_1 - P_2}$$

The smaller the intervals in the bond table the more accurate are the approximations of yield obtained by the use of this formula.

In purchasing investments, the yield problem frequently takes a different form. Suppose a 5% bond for $1,000.00 is to be transferred at a price to yield 4.75% and the acccrued interest. The bond has four years and 103 days to run; interest is paid semiannually. Assuming 183 days in the half year, on the day of the transfer there is accrued interest at 5% per annum for 80 days, or $10.93. For the yield 4.75% the table shows the prices to be $1,010.02260 at four and one-half years and $1,009.01063 at four years. The price for the principal of the bond will therefore be between $1,010.02 and $1,009.01. It will be found by interpolation thus:

$$\begin{aligned} P &= \$1,009.01 + \frac{103}{183}\,(\$1,010.02260 - \$1,009.01063) \\ &= \$1,009.01 + \frac{103}{183}\,(\$1.01197) \\ &= \$1,009.01 + .57 = \$1,009.58 \end{aligned}$$

VALUES, TO THE NEAREST CENT, OF A BOND FOR $1,000,000 AT 5% INTEREST, PAYABLE SEMI-ANNUALLY[1]

Net Income	½ Year	1 Year	1½ Years	2 Years	2½ Years
2.50	1,012,345.68	1,024,538.94	1,036,581.67	1,048,475.72	1,060,222.94
2.55	1,012,095.78	1,024,039.28	1,035,832.41	1,047,477.08	1,058,975.15
2.60	1,011,846.00	1,023,539.98	1,035,083.89	1,046,479.66	1,057,729.18
2.65	1,011,596.35	1,023,041.05	1,034,336.10	1,045,483.45	1,056,485.02
2.70	1,011,346.82	1,022,542.49	1,033,589.04	1,044,488.45	1,055,242.67
2.75	1,011,097.41	1,022,044.30	1,032,842.71	1,043,494.66	1,054,002.13
2.80	1,010,848.13	1,021,546.48	1,032,097.12	1,042,502.09	1,052,763.40
2.85	1,010,598.96	1,021,049.02	1,031,352.25	1,041,510.72	1,051,526.47
2.90	1,010,349.93	1,020,551.92	1,030,608.11	1,040,520.56	1,050,291.33
2.95	1,010,101.01	1,020,055.20	1,029,864.69	1,039,531.60	1,049,058.00
3.00	1,009,852.22	1,019,558.83	1,029,122.00	1,038,543.85	1,047,826.45
3.05	1,009,603.55	1,019,062.84	1,028,380.04	1,037,557.29	1,046,596.69
3.10	1,009,355.00	1,018,567.21	1,027,638.80	1,036,571.94	1,045,368.72
3.15	1,009,106.57	1,018,071.94	1,026,898.29	1,035,587.78	1,044,142.54
3.20	1,008,858.27	1,017,577.04	1,026,158.50	1,034,604.82	1,042,918.13
3.25	1,008,610.09	1,017,082.50	1,025,419.43	1,033,623.06	1,041,695.50
3.30	1,008,362.03	1,016,588.32	1,024,681.08	1,032,642.48	1,040,474.65
3.35	1,008,114.09	1,016,094.51	1,023,943.45	1,031,663.10	1,039,255.57
3.40	1,007,866.27	1,015,601.06	1,023,206.54	1,030,684.90	1,038,038.25
3.45	1,007,618.58	1,015,107.97	1,022,470.35	1,029,707.89	1,036,822.70
3.50	1,007,371.01	1,014,615.24	1,021,734.88	1,028,732.07	1,035,608.91
3.55	1,007,123.56	1,014,122.88	1,021,000.12	1,027,757.43	1,034,396.88
3.60	1,006,876.23	1,013,630.87	1,020,266.08	1,026,783.97	1,033,186.61
3.65	1,006,629.02	1,013,139.23	1,019,532.76	1,025,811.69	1,031,978.09
3.70	1,006,381.93	1,012,647.95	1,018,800.14	1,024,840.59	1,030,771.32
3.75	1,006,134.97	1,012,157.03	1,018,068.25	1,023,870.67	1,029,566.30
3.80	1,005,888.13	1,011,666.46	1,017,337.06	1,022,901.92	1,028,363.02
3.85	1,005,641.40	1,011,176.26	1,016,606.58	1,021,934.35	1,027,161.49
3.90	1,005,394.80	1,010,686.42	1,015,876.82	1,020,967.94	1,025,961.69
3.95	1,005,148.32	1,010,196.93	1,015,147.76	1,020,002.71	1,024,763.63
4.00	1,004,901.96	1,009,707.80	1,014,419.42	1,019,038.64	1,023,567.30
4.05	1,004,655.72	1,009,219.04	1,013,691.78	1,018,075.74	1,022,372.70
4.10	1,004,409.60	1,008,730.63	1,012,964.85	1,017,114.01	1,021,179.82
4.15	1,004,163.61	1,008,242.57	1,012,238.62	1,016,153.44	1,019,988.67
4.20	1,003,917.73	1,007,754.88	1,011,513.10	1,015,194.03	1,018,799.24
4.25	1,003,671.97	1,007,267.54	1,010,788.28	1,014,235.77	1,017,611.53
4.30	1,003,426.33	1,006,780.55	1,010,064.17	1,013,278.68	1,016,425.53
4.35	1,003,180.82	1,006,293.92	1,009,340.76	1,012,322.74	1,015,241.25
4.40	1,002,935.42	1,005,807.65	1,008,618.06	1,011,367.96	1,014,058.67
4.45	1,002,690.14	1,005,321.74	1,007,896.05	1,010,414.33	1,012,877.80
4.50	1,002,444.99	1,004,836.17	1,007,174.74	1,009,461.85	1,011,698.63
4.55	1,002,199.95	1,004,350.97	1,006,454.14	1,008,510.52	1,010,521.16
4.60	1,001,955.03	1,003,866.11	1,005,734.23	1,007,560.34	1,009,345.39
4.65	1,001,710.24	1,003,381.61	1,005,015.02	1,006,611.30	1,008,171.32
4.70	1,001,465.56	1,002,897.47	1,004,296.50	1,005,663.41	1,006,998.94
4.75	1,001,221.00	1,002,413.68	1,003,578.68	1,004,716.66	1,005,828.24
4.80	1,000,976.56	1,001,930.24	1,002,861.56	1,003,771.05	1,004,659.23
4.85	1,000,732.24	1,001,447.15	1,002,145.13	1,002,826.59	1,003,491.91
4.90	1,000,488.04	1,000,964.41	1,001,429.39	1,001,883.25	1,002,326.26
4.95	1,000,243.96	1,000,482.03	1,000,714.35	1,000,941.06	1,001,162.29
5.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00

FIGURE 32

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[1] C. E. Sprague, *Extended Bond Tables*, copyright 1915, The Ronald Press Company, New York.

VALUES, TO THE NEAREST CENT, OF A BOND FOR $1,000,000 AT 5% INTEREST, PAYABLE SEMI-ANNUALLY[1]

Net Income	3 Years	3½ Years	4 Years	4½ Years	5 Years
2.50	1,071,825.12	1,083,284.07	1,094,601.55	1,105,779.31	1,116,819.07
2.55	1,070,328.46	1,081,538.84	1,092,608.09	1,103,537.98	1,114,330.27
2.60	1,068,834.33	1,079,796.97	1,090,618.92	1,101,302.00	1,111,847.97
2.65	1,067,342.73	1,078,058.45	1,088,634.05	1,099,071.36	1,109,372.18
2.70	1,065,853.65	1,076,323.28	1,086,653.46	1,096,846.04	1,106,902.85
2.75	1,064,367.09	1,074,591.45	1,084,677.14	1,094,626.03	1,104,439.98
2.80	1,062,883.04	1,072,862.96	1,082,705.08	1,092,411.33	1,101,983.56
2.85	1,061,401.50	1,071,137.78	1,080,737.28	1,090,201.90	1,099,533.55
2.90	1,059,922.46	1,069,415.93	1,078,773.71	1,087,997.74	1,097,089.94
2.95	1,058,445.92	1,067,697.38	1,076,814.37	1,085,798.84	1,094,652.71
3.00	1,056,971.87	1,065,982.14	1,074,859.25	1,083,605.17	1,092,221.85
3.05	1,055,500.31	1,064,270.19	1,072,908.34	1,081,416.74	1,089,797.33
3.10	1,054,031.24	1,062,561.54	1,070,961.63	1,079,233.51	1,087,379.13
3.15	1,052,564.64	1,060,856.16	1,069,019.11	1,077,055.49	1,084,967.25
3.20	1,051,100.52	1,059,154.06	1,067,080.77	1,074,882.64	1,082,561.66
3.25	1,049,638.87	1,057,455.22	1,065,146.59	1,072,714.97	1,080,162.34
3.30	1,048,179.68	1,055,759.65	1,063,216.58	1,070,552.46	1,077,769.27
3.35	1,046,722.96	1,054,067.33	1,061,290.71	1,068,395.09	1,075,382.44
3.40	1,045,268.68	1,052,378.25	1,059,368.98	1,066,242.85	1,073,001.82
3.45	1,043,816.86	1,050,692.42	1,057,451.38	1,064,095.73	1,070,627.41
3.50	1,042,367.48	1,049,009.81	1,055,537.90	1,061,953.71	1,068,259.17
3.55	1,040,920.54	1,047,330.43	1,053,628.52	1,059,816.78	1,065,897.10
3.60	1,039,476.04	1,045,654.27	1,051,723.25	1,057,684.92	1,063,541.18
3.65	1,038,033.97	1,043,981.31	1,049,822.06	1,055,558.13	1,061,191.38
3.70	1,036,594.33	1,042,311.57	1,047,924.95	1,053,436.38	1,058,847.70
3.75	1,035,157.11	1,040,645.01	1,046,031.91	1,051,319.67	1,056,510.11
3.80	1,033,722.30	1,038,981.65	1,044,142.93	1,049,207.98	1,054,178.59
3.85	1,032,289.91	1,037,321.47	1,042,258.00	1,047,101.30	1,051,853.13
3.90	1,030,859.92	1,035,664.46	1,040,377.11	1,044,999.62	1,049,533.71
3.95	1,029,432.34	1,034,010.63	1,038,500.25	1,042,902.92	1,047,220.32
4.00	1,028,007.15	1,032,359.96	1,036,627.41	1,040,811.18	1,044,912.93
4.05	1,026,584.36	1,030,712.44	1,034,758.58	1,038,724.41	1,042,611.52
4.10	1,025,163.96	1,029,068.07	1,032,893.74	1,036,642.57	1,040,316.09
4.15	1,023,745.94	1,027,426.84	1,031,032.90	1,034,565.67	1,038,026.61
4.20	1,022,330.31	1,025,788.74	1,029,176.04	1,032,493.68	1,035,743.07
4.25	1,020,917.04	1,024,153.77	1,027,323.16	1,030,426.59	1,033,465.45
4.30	1,019,506.15	1,022,521.93	1,025,474.23	1,028,364.40	1,031,193.73
4.35	1,018,097.62	1,020,893.20	1,023,629.26	1,026,307.08	1,028,927.90
4.40	1,016,691.46	1,019,267.57	1,021,788.23	1,024,254.63	1,026,667.93
4.45	1,015,287.65	1,017,645.05	1,019,951.13	1,022,207.03	1,024,413.82
4.50	1,013,886.19	1,016,025.62	1,018,117.96	1,020,164.27	1,022,165.54
4.55	1,012,487.08	1,014,409.27	1,016,288.70	1,018,126.33	1,019,923.08
4.60	1,011,090.32	1,012,796.01	1,014,463.35	1,016,093.21	1,017,686.42
4.65	1,009,695.89	1,011,185.82	1,012,641.90	1,014,064.89	1,015,455.55
4.70	1,008,303.80	1,009,578.70	1,010,824.33	1,012,041.35	1,013,230.44
4.75	1,006,914.03	1,007,974.64	1,009,010.63	1,010,022.60	1,011,011.08
4.80	1,005,526.59	1,006,373.63	1,007,200.81	1,008,008.60	1,008,797.46
4.85	1,004,141.48	1,004,775.67	1,005,394.84	1,005,999.36	1,006,589.56
4.90	1,002,758.67	1,003,180.75	1,003,592.72	1,003,994.85	1,004,387.36
4.95	1,001,378.18	1,001,588.86	1,001,794.45	1,001,995.07	1,002,190.85
5.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00

FIGURE 32 (*Continued*)

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[1] C. E. Sprague, *Extended Bond Tables*, copyright 1915, The Ronald Press Company, New York.

the amount paid for the bond will then be $1,009.58 + $10.93, or $1,020.51. The entry for the purchase of this bond would be:

Bonds of Blank Company	$1,009.58	
Interest on Bonds Owned	10.93	
Cash		$1,020.51
To record purchase of bond at price to yield 4.75%, and accrued interest.		

Since most organizations which buy bonds as permanent investments are buying on a "yield basis," the use of bond tables in fixing purchase prices is almost universal.

This purchase of bonds on a yield basis is of the utmost importance in their valuation for all subsequent balance sheets during the time the investments are held. Suppose that a bond having four years to run and promising 5% interest was purchased at $1,036.63 to yield 4% per annum, the interest being payable every six months. If this bond is held until maturity the value will decrease according to the schedule in Figure 33.

Amortization Schedule for 5% Bond
Convertible Semi-annually, Maturing in 4 Years
Bought to Yield 4%

I Period	II Principal before Amortization	III Interest at 2% for the Half Year	IV Coupon Interest at 2.5% for Half Year	V Amortization	VI Amortized Principal
Purchase					1,036.63
0.5 year	1,036.63	20.73	25.00	4.27	1,032.36
1 year	1,032.36	20.65	25.00	4.35	1,028.01
1.5 years	1,028.01	20.56	25.00	4.44	1,023.57
2 years	1,023.57	20.47	25.00	4.53	1,019.04
2.5 years	1,019.04	20.38	25.00	4.62	1,014.42
3 years	1,014.42	20.29	25.00	4.71	1,009.71
3.5 years	1,009.71	20.19	25.00	4.81	1,004.90
4 years	1,004.90	20.10	25.00	4.90	1,000.00

Figure 33

Figure 33 shows that the value of the bond purchased for $1,036.63 would have fallen to $1,032.36 by the time it had been owned six months, and to $1,028.01 in a year. At maturity the value would be exactly par. The amortization for each period is the difference between the interest on par at the contract or coupon rate, and interest at the yield or effective rate on the amortized value at the beginning of the period. The amortization for any period is the decline in value of the investment if it was bought at a premium, or the increase in value if the price was less than par. The method of recording this change in value on the books is well known. The first time interest is collected on the bond which is the subject of Figure 33, the entries would be journalized thus:

Cash	$25.00	
Interest on Bonds Owned		$25.00
To record collection of cash on coupon for six months' interest on bond of ———.		
Interest on Bonds Owned	4.27	
Bonds of ——— Owned		4.27
To record amortization of premium on investment in bonds of ———.		

On the other hand, had a 3% bond for $1,000.00 with four years to run been purchased to yield 4%, it would have cost $963.37, and the entry at the first interest date would have been:

Cash	$15.00	
Interest on Bonds Owned		$15.00
To record collection of cash on coupon for six months' interest on bond of ———.		
Investment in Bonds of ———	4.27	
Interest on Bonds Owned		4.27
To record amortization of discount on bonds of ———.		

These amortization entries periodically bring the book value of the investment closer and closer to par until, at maturity, the book and face values are equal.

Amortization Schedule for 3% Bond
Convertible Semi-annually, Maturing in 4 Years
Bought to Yield 4%

I Period	II Principal before Amortization	III Interest at 2% for the Half Year	IV Coupon Interest at 1.5% for the Half Year	V Amortization	VI Amortized Principal
Purchase					963.37
0.5 year	963.37	19.27	15.00	4.27	967.64
1 year	967.64	19.35	15.00	4.35	971.99
1.5 years	971.99	19.44	15.00	4.44	976.43
2 years	976.43	19.53	15.00	4.53	980.96
2.5 years	980.96	19.62	15.00	4.62	985.58
3 years	985.58	19.71	15.00	4.71	990.29
3.5 years	990.29	19.81	15.00	4.81	995.10
4 years	995.10	19.90	15.00	4.90	1,000.00

Figure 34

If the interest date of the bond does not correspond with the time of closing the books, it is necessary to accrue both interest and amortization to the day of the balance sheet. To illustrate this procedure, assume that the 3% bond for $1,000.00 is bought on its interest date, October 31, 1931, and that the books are closed December 31, 1931. The bond, when bought, had four years to run, and was priced at $963.37 to net 4%. In adjusting as of December 31, it will be necessary to accrue interest and amortization for two months, or one-third of an interest period. The adjusting entry will therefore be:

Accrued Bond Interest Receivable	$5.00	
Investment in Bonds of ———	1.42	
Interest on Bonds Owned		$6.42
To record interest and amortization accrued on bonds of ——— from October 31 to December 31, 1931.		

If such an entry has been made, when the interest is collected later the amortization for the remaining part of the interest period will have to be entered. The entries made April 30, 1932, in the case of the bond just assumed would be:

Cash	$15.00	
Accrued Bond Interest Receivable		$ 5.00
Interest on Bonds Owned		10.00
To record collection of interest for six months on bond of ———.		
Investment in Bonds of ———	2.85	
Interest on Bonds Owned		2.85
To record amortization for four months from December 31 to April 30 on bond of ———.		

Instead of debiting the investment at cost, some accountants prefer to charge it at the par of the bonds purchased, opening also an account for Premium on Bonds Owned or for Discount on Bonds Owned. If this type of purchase entry is made, the premium or discount is amortized by periodical adjustments to Premium on Bonds Owned or to Discount on Bonds Owned instead of by entries in the investment account proper. The only important objection to this practice is the multiplication of accounts: it is simpler to have just one account for each investment or for each type of bond owned. Such premium and discount accounts must be named very carefully, or they may be confused with discounts or premiums on the bonds payable.

The method of amortization illustrated in Figures 33 and 34 is sometimes called "scientific amortization." A better name would be "compound interest amortization," for the purpose is merely to find and to use a rate of interest that will be constant as the principal increases or decreases to par. The use of the compound interest method of amortization is very important for companies with large investments. If, however, the investments of an organization are comparatively unimportant, there is nothing gained by such scrupulous mathematical accuracy, and what is known as "straight-line amortization" is satisfactory. In straight-line amortization calculations, the premium or the discount is divided by the number of periods from the purchase

to the maturity of the bond, and the quotient is treated as the amortization for a period.

If bond tables are not available, the yield of a bond can be approximately calculated by the formula:

$$\text{Rate of Yield} = \frac{\text{Cash interest for period} \pm \text{straight line amortization for period}}{\frac{1}{2}\,(\text{purchase price} + \text{maturity value})}$$

In other words, the approximate yield rate is found by dividing the average net interest per period by the average of the purchase price and the par value of the bond.

There is no question but that bonds purchased to be held to maturity should be valued by a systematic amortization of the premium or discount as long as there is no reason to doubt their redemption when due. If there appears to be a real probability that these bonds cannot be paid at maturity, there should be set up out of surplus a reserve equal to the estimated loss that will be sustained. Even in cases of default of redemption at maturity the bond holders seldom lose their entire investment, as normally they are better protected than ordinary creditors. Bonds payable bought to be held in a sinking fund by a trustee are sometimes treated as investments, the discount or premium being amortized. Such bonds, however, actually are a deduction from the liability Bonds Payable, and the discount should be treated as a gain or the premium as a loss of the current year.

The evaluation of permanent investments in bonds at full cost as modified by amortization of premiums and discounts is well established, and is accurate as long as there is prospect of the debt being liquidated when due.

Advances to Subsidiaries.—Advances to subsidiaries may be made in many ways, such as outright loans, the sale of goods without prospect of collection, or the provision of a plant or of fixed assets. Advances are forms of investments, the valuation of which depends on circumstances. If an advance is as sure of prompt collection as an ordinary account receivable, it may be placed among the current assets at its face value. On the other hand, the advance may be a permanent investment of capital in a subsidiary. In this case, if the subsidiary is in good financial condition, the item may be held at par, but if the advancee is not prospering and has not offered and given good security, the investment must be valued much below cost. If there is no prospect of receiving a return of the advance, it should be written off like a bad debt loss. Thus each advance must be studied carefully to determine, first, whether it should be treated as an asset or as an expense, second, what allowance should be made for its valuation, and third, whether it should be classed as current or as a permanent investment.

Minority Holdings of Corporate Stock.—When the stock of a corporation is purchased it should be debited to an appropriate investment account at full cost, including the brokerage and the transfer fees and taxes. If such stock is to be held indefinitely, there is no necessity of adjusting its value periodically to harmonize with market fluctuations, because it is a permanent asset held to afford dividends or to establish community of interests. But if the corporation whose stock is owned shows a marked decline in financial condition, it is only proper that the unfavorable situation be reflected in the balance sheet. This may be accomplished by creating a reserve out of surplus equal to the shrinkage in book value of the stock. Sometimes a footnote in the balance sheet is sufficient to call attention to the condition, but no serious decline should be ignored.

Majority Holdings of Corporate Stock.—When the block of stock in another corporation is sufficient in size to give control, the purchase entry is made precisely as when a minority interest is acquired. However, the profits and losses of the subsidiary are proportionately profits and losses of the holding company, since the latter can elect directors and thus dictate the distribution of the surplus. Therefore, whenever the subsidiary closes its books and finds a profit, the owning organization will make an entry debiting the investment account and crediting some such account as Profit and Loss from Subsidiaries for a proportionate amount of the gain. In case the controlling investment is common stock, and there is preferred stock outstanding, the proportionate share of the profits belonging to the holding organization should be determined after deducting from the profits of the subsidiary an amount equal to the dividends which should be paid on its preferred stock. On the other hand, when the subsidiary shows a net loss, the holding company should debit Profit and Loss from Subsidiaries and credit the investment account for a proportionate share of the entire loss.

Dividends received from the subsidiary are partial returns of the investment if the accounts are handled in this way. Therefore, when the subsidiary declares a dividend, the holding company will debit Dividends Receivable from ———, and credit the investment account. On receipt of the dividend check, the debit will be to Cash and the credit to Dividends Receivable from ———. In brief, the receipt of a dividend from the subsidiary is a change from the asset investment to the asset cash. If the subsidiary distributes stock dividends, the only proper entry is a notation on the investment account of the change in the number of shares owned.

The theory back of this method of handling controlling investments in stock is that the profits or losses of a subsidiary are actually realized, provided its accounts are correctly kept. Profits realized by the subsidiary or losses sustained directly affect its net worth. The holding company owns a share of the net worth which is thus affected by profits and losses of the subsidiary. Therefore, the profits and losses of the subsidiary are actually realized by the holding company which can control the distribution of these profits. The validity of this theory is only partially recognized by the United States Income Tax Law, which permits "affiliated corporations" to file consolidated returns. The law recognizes "affiliation" for 1928 only "if one corporation owns at least 95 per centum of the stock of the other or others, or if at least 95 per centum of the stock of two or more corporations is owned by the same interests. As used in this subsection the term 'stock' does not include non-voting stock which is limited and preferred as to dividends." This failure of the income tax law or regulations to recognize less than 95-per-cent ownership as affiliation does not, however, outlaw the proposal to keep the investment account at its true value by adding proportionate shares of profits of subsidiaries and deducting proportionate shares of losses in case of smaller controlling ownership. The subsidiary will have to pay tax on its own profits. The entries on the books of the holding company taking up proportionate profits do not betoken actual taxable income because "appreciation in the value of property is not even an accrual of income to a taxpayer prior to the realization of such appreciation through sale or conversion of the property." Moreover, in the case of a corporation, dividends received from a domestic corporation are deductible from gross income for tax purposes. Thus this method of accounting for controlling interests may be adopted without increasing federal income tax liability.

An alternative method of accounting for majority holdings of stock is to carry the investment at cost. If this plan is adopted, the only appearance of income from the subsidiary on the books of the holding company is the entry debiting Dividends Receivable and crediting Income from Subsidiaries, made when the dividend is declared. While this method fails to make the books of the holding company exhibit its true status, it is simple and in harmony with the type of accounting most consistent with the Income Tax Regulations in cases where the holding is less than 95 per cent of the voting stock of the subsidiary. Although the balance sheet of the holding company is not accurate, a "consolidated balance sheet" would show the true state of affairs. The discussion of consolidated balance sheets, however, must be postponed to Chapter XXIV.

Stock Rights.—Under the common law and under the statutes of most commonwealths, if a corporation desires to issue additional capital stock, the new shares must be offered to the stockholders in proportion to their ownership. This is because the issue of voting stock to some of the stockholders but not to others, or a sale to outsiders, would change the proportionate control of the share owners, and would also alter the relative interests in the net worth. Thus this principle is a protection to the stockholders, particularly to those with small holdings who would not be "on the inside" of any manipulation of capital. So when a corporation is about to issue new stock, it sends to each stockholder a "warrant," which is a transferable evidence of the stockholder's right to subscribe to the new issue at a certain price. A single "right" may be, as in Philadelphia, the privilege of subscribing to one whole share of the new stock, but in New York and some other financial communities a single "right" is the privilege of subscription attaching to each share of the old stock. Suppose a corporation has outstanding 10,000 shares of stock and is to issue 2,000 additional. Under the first definition there would be given to the stockholders 2,000 single rights, each of which would entitle the holder to subscribe to one full share of the new stock. Old stockholders would be given as many rights as they hold multiples of five shares; for fractions of five shares held, stockholders would be given fractional rights. Thus, one owning eighteen shares of the old stock would receive three full rights and three fractional rights, each fraction being equivalent to one-fifth of a full right. If this stockholder desires to subscribe to four of the new shares he will have to obtain two fractional rights from some other person who is willing to sell. On the other hand, under the second definition each stockholder would be given as many rights as he holds shares of stock, but he would have to have five rights for each share of the new stock to which he wished to subscribe.

The price at which subscriptions will be received is stated in the warrants. If this price is below the market value of the stock, the rights will be salable. As a matter of fact, the subscription price is almost always fixed considerably below the market price because, unless the subscription rate equals or exceeds the book value per share of the old stock, the new issue will lower book value and market values will therefore fall. Thus there often develops a brisk trade in rights, since many of the stockholders do not have sufficient funds to exercise their privilege. Theoretically the value of a right would be found by the formula:

$$R = \frac{M - S}{n + 1},$$

if R is the theoretical value of one right, M the market price of the stock, S the price at which the stock is offered for subscription, and n the number of rights required to secure one share of the new issue. To illustrate the application of this formula, suppose a corporation has

outstanding 100,000 shares of stock and is to issue an additional 25,000 shares, 100,000 "New York rights" having been given to the stockholders. The subscription price is $120.00 per share and the market price "ex rights" has fallen to $148.00. The value of a right would be found by substitution in the formula, thus:

$$R = \frac{\$148.00 - \$120.00}{4 + 1} = \frac{\$28.00}{5} = \$5.60$$

Since stock rights are ordinarily salable, there may be a temptation to place them on the books as an asset. This, however, ignores the fact that the issue of the new stock almost invariably decreases both the book value and the market value per share. Thus the value of the stock already owned drops an amount which is roughly equivalent to the market price of the rights received. Therefore, a corporation having unexercised rights which are still valid should make no entry on its books. But whenever these rights are exercised, the investment account should be charged at the subscription price. This principle is in harmony with the Federal Income Tax Regulations, which state that "Where a corporation issues to its shareholders rights to subscribe to its stock, the value of the rights does not constitute taxable income to the shareholder." But if rights are sold, the Treasury Department requires the reporting of income according to a formula which may be written:

$$I = S - \frac{V O}{M + V}$$

in which I is the taxable income, S the actual amount received for the rights sold, V the market value of all the rights apportioned to the taxpayer at the date of issue by the corporation, M the market price of all the old stock owned on the day the rights were issued, and O the cost of the old stock held. This formula may show a loss which is deductible in calculating net taxable income. Since the Treasury Department requires the reporting of income or loss from the sale of rights, consistent accounting would require that the entry for such a sale be a debit to Cash for the amount actually received, a debit to a loss account for reportable loss or a credit to a gain account for reportable income, and a credit to the investment account of either the sum of the cash received and the reportable loss, or the difference between the cash received and the reportable income. Further, it should be noticed that the Treasury Department has adopted a rather complicated formula for computing the gain or loss on stock sold after rights have been exercised.

Life Insurance Policies.—When an organization insures the lives of its members, officers, or important employees for its own benefit, it is buying protection. The death of the individual may seriously affect the credit or the management of the business for a considerable time until he can be replaced; the death of a partner disrupts the firm and requires the payment of a considerable amount of cash to the estate within a comparatively short period. The cheapest and probably the best way of obtaining this insurance is the renewable term policy. Since such a policy has no cash surrender value, the entire amount of the premiums should be charged to expense. This expense is not deductible under the income tax law now in force, but if the insured person should die the entire benefit collected would be tax free. The certainty of receiving a stipulated amount of cash upon the death of the insured is not in any sense an asset, because the connection may be severed at any time.

Other types of life insurance policies have cash surrender values which usually begin after the second or third year of the life of the contract. This cash surrender value may best be considered as an investment as it is a real asset to the organization, for the policy may be surrendered and the cash obtained upon short notice. When the organization takes out a policy promising cash surrender values, the premiums should be charged to an expense account for the first two or three years. As soon as the cash surrender value appears, the debit for the premiums may be divided, as much of the premium as the increase of cash surrender value being charged to Investment in Insurance and the balance to an expense account. Sometimes the investment account is called Cash Surrender Value of Insurance Policies. In case the insured dies, the cash collected on the policy will be charged to Cash, the credits will be to Investment in Insurance for the entire amount in that account which has arisen out of the insurance on the deceased, and to Surplus for the balance. If the insured severs his connection with the employer, the policy may be canceled and the surrender value collected, the credit being to Investment in Insurance. Should the cash surrender value, when it first appears, exceed the current premium, the excess should be credited to Surplus.

There are two other methods of accounting for life insurance premiums in the case where the employer is the beneficiary of the policy. One plan is to charge all premiums in full to Investment in Life Insurance. This plan is founded either on a misconception of the nature of the insurance contract or on a desire to minimize expenses. There is no investment during the first years of the life of the ordinary life insurance policy, and in the later years the premiums are ordinarily larger than the increments of the cash surrender values. The second alternative is to charge all premiums paid to Investment in Life Insurance and then each year to make an adjustment debiting Cash Surrender

Value of Life Insurance and crediting Investment in Life Insurance with the increment in the cash surrender value. This method also overrates the asset value by the full amount left in Investment in Insurance after any adjustment.

So-called "endowment" policies are more than contracts of insurance. If such policies are carried, there may be cash surrender values by the end of the initial year of the contract, and the increments of cash surrender value may exceed the premiums in the later years. Such excesses should be credited to Surplus. When the endowment is collected, only the amount by which the sum received surpasses the total of premiums paid is reportable as income for taxation. In conclusion, life insurance policies and endowment insurance policies should be valued at the cash surrender value—never at more.

Intangible Assets.—Goodwill and exclusive rights or privileges granted or protected by law are known as intangible assets. Some accountants group the intangibles with fixed assets in making a balance sheet, but they are so different and their values are so likely to be inflated that it is better to segregate them. In general, intangible assets should be placed on the books only when they have been paid for, and those intangibles which have a specifically limited duration should be written down by a systematic plan to zero at the time they expire. Several types of intangibles will be discussed in order to advance for consideration some of the more critical problems in their valuation.

Goodwill.—Goodwill has been defined as the discounted value of those profits expected in the future above what is considered a proper return on invested capital. The word is often used in a broader sense to cover a great many things, such as reputation in the business or professional world, the habit of customers of trading with a given firm or employing a particular professional man, or the advantages of a particular location. Some authorities go further and add monopoly rights, patents, copyrights, trade names, and trade-marks, but these, intangible as they are, are best classed by themselves.

Some concerns have charged a part of their advertising to Goodwill on the theory that the impression made carries over to future periods. While there may be cases in which a relatively enormously expensive initial advertising campaign to introduce a product may be spread legitimately over several years, this deferment of the expense is very different from what may properly be called goodwill. Advertising literature is replete with stories of businesses which thought they had built up goodwill, and which found, when they ceased to advertise, that their market dwindled or disappeared entirely. For a going concern to charge advertising to goodwill is the type of inflation that may readily invite disaster.

When a business has a peculiarly advantageous site, its owners are sometimes tempted to capitalize the differential profits due to this location and call it goodwill. If the value is in the location it is properly a land value. Conservative accounting is opposed to writing up this land value, but if the owners insist upon placing the appraisal on the books, it should be done by debiting the land account and crediting a proper valuation account. The unearned increment of land value is not goodwill; it would belong to any owner who conducted with great skill a business especially adapted to the site.

There are three types of occasions, all closely related, for the placing of goodwill upon the books: (1) when a definite price has been paid for goodwill, (2) when it is written on the books as part of the valuation of a business provided by contract involving a change of proprietorship, and (3) when the business, including its goodwill, is to be sold. Even in many of these cases the booking of goodwill is distinctly unwise as a business and accounting policy.

If a business is purchased the vendee may agree to pay for goodwill either in stock, cash, or some other medium. Such payment is universally recognized as just and legitimate in many cases where there is an established reputation of considerable value that can be transferred with the other assets. Of course there is danger that the goodwill may disappear if the change of proprietors becomes public. When a business is purchased at a lump sum in excess of the net worth on the vendor's books, it is customary for the vendee to charge the excess to Goodwill. Such an entry is not necessary, however, as the excess may be distributed among the fixed assets on the theory that they are worth more to the buyer than their carrying value on the books of the seller. This method has a decided advantage. The assets in the fixed group may be written down for depreciation, thus eliminating the excess payment altogether in the course of time; but no deduction may be claimed for depreciation of goodwill in making an income tax return. Thus there is a distinct gain from avoiding the goodwill account in such a case.

Occasions of the second type generally arise in connection with the affairs of partnerships. Co-partnership agreements often provide that in case of the death or withdrawal of one of the members of the firm, goodwill is to be determined according to certain rules, and the withdrawing member or the estate of the deceased partner is to receive a share based on the interest including the goodwill. In carrying out such contracts it is the general practice to place upon the books the entire goodwill as computed by the agreed formula, crediting the accounts of partners with their respective shares. A more conservative accounting, however, would determine the goodwill on the basis of the prearranged formula, and enter only the share belonging to the partner withdrawing, crediting his account or that of his estate. By this method the goodwill on the books will be only what actually has been paid for. Similarly, if a partner is received into a business, his capital contribution being greater in proportion to his share in the firm than the capital accounts of the other partners before his admittance, it is customary to write goodwill upon the books, crediting the original members with an amount sufficient to make the capital accounts of all partners proportionate to their interests in the firm. The accounting problems involved in such transactions are discussed in Chapter XIX.

The third type of occasion for placing goodwill on the books is the desire to make a better showing preparatory to the sale of a business. While such an entry may be desirable, it is difficult to see why any informed person should pay more for a business simply because such an asset appears in the balance sheet than he would if it had been omitted.

If goodwill is to be valued either for the purpose of fixing the amount of the estate of a decedent or in arriving at a fair sale price of a business, the general procedure is to determine the average net earnings for the last three or five years. From this average is deducted an amount which is the estimated value of the personal services of the owners to the business. A second deduction is then made for a fair return on the net capital invested, the rate varying from 6 to 12 per cent, depending on the stability of the industry. What remains is considered the excess annual profits, or the yearly earnings of goodwill. The value of the goodwill may be estimated as the present value of an annuity equal to these excess profits for a certain number of years, say five or eight. More simply, the goodwill may be valued at a certain number of "years' purchase" of the excess annual profits, that is, at a certain number of times these profits. Goodwill is thus frequently taken at two times the annual excess profits, although for professional practices the multiplier is sometimes three, for manufacturing businesses four, for wholesalers five, and for monopolies ten or more. These multipliers are frequently in dispute among interested parties, and the same person will use different multipliers in different cases as the circumstances vary or as he thinks they vary. When the proposed methods of valuing goodwill are analyzed, all are found to be inexact, partly because there is no generally satisfactory definition of goodwill itself, no final criterion of the normal earning power of capital, no way of separating from other factors the value of personal contributions to the success of a business, and finally because whatever goodwill may be, it is ephemeral.

As a matter of fact, goodwill, where it does exist, fluctuates in value probably more than any other asset; yet it does not wear out or suffer depletion like the fixed assets, and it does not expire like the patents and copyrights. Therefore, once on the books, goodwill may not be depreciated for income tax deductions. It may be written off against earned surplus. However advisable it may be from the point of view of conservatism to reduce goodwill out of surplus, it is seldom done, partly because there is no definite measure of the life of this intangible, and partly because those organizations which really have it may so frame their policies that as time goes on their goodwill actually increases. The conclusion of the matter is that goodwill, if it appears at all, should be valued at actual cost, or at the lowest amount compatible with contracts providing for its valuation in connection with changes in the proprietorship of partnerships.

Franchises.—Many public utilities enjoy monopolistic rights of great value. These franchises should be placed upon the books at cost, including payments to the state or the price of purchase from a previous holder, and legal expenses of obtaining or establishing the grant. If the franchise is definitely limited, it should be written off annually by decrements equal to its cost divided by its duration in years.

Going Value.—In order to raise their valuations for rate-making purposes the public utilities have advocated the recognition of Going Value, or the value of the plant as an entirety in excess of the sum of the values of the constituent parts. The root idea is that, after the plant is complete, some time must elapse before revenues exceed expenses. The net losses of the first years are looked upon as necessary to make the business ultimately profitable. These initial losses are, therefore, considered as Going Value. As long as regulatory bodies allow such values it is "business" for the utilities to claim them. The possibility of thus capitalizing early losses implies that the public must pay annual interest on the cost of the mistakes of management by the utility officials. A second implication is that the more the utility company loses, the greater is its value.

Some of the utility commissions recognize the obvious fact that a plant with customers is worth more than one without, and they therefore consider the value of these customers, or the cost of obtaining them, as Going Value. Seldom, if ever, does Going Value actually appear on the books, although it occasionally is listed as Developmental Expense.

Organization Expense.—In forming a corporation, it is necessary to expend funds for incorporation fees, lawyers' charges, recording documents, notorial services, engraving stock certificates, and other incidentals in the creation of an organization. These outlays are usually charged to Organization Expense because the mere fact of existence in corporate form is worth something, and because, until there is some revenue, all payments have to come out of the capital contributions. Hence, Organization Expense is treated as a deferred asset and may be written off gradually against surplus. The Income Tax Regulations class organization expenses as "capital expenditures and not deductible from gross income."

Patents.—The federal government will confer upon the inventor who properly presents his claims the exclusive right to make and vend what he has invented or to control the use of processes he has originated. This implies that he may license others to use or to make and sell the device. Patents should be valued at cost. If the patent has been purchased, the purchase price is the cost. If it has been secured by the owner for one of his own inventions or for that of one of his employees, the cost will include the government fee, the charges of the patent attorney, and the cost of the experimental work in developing the device. The unproductive work in research laboratories is frequently charged to the accounts of the successful inventions which are patented. Such a policy is dangerous in that it overburdens the successful devices with costs and capitalizes misdirected effort. It is better to charge all experimental expenses in a laboratory to revenue. Such outlays should be fairly uniform from year to year, and the ultimate profits will be just as great if these expenditures are not capitalized, while assets will be saved from inflation by such revenue charges. The expenses of defending particular patents in the courts are considered legitimate additions to their cost because the government takes no responsibility for protecting the owner.

The exclusive rights granted under a patent last only seventeen years and are not renewable except by special act of Congress. For this reason the patent must be written off completely in that time. The Income Tax Regulations allow a patent to be depreciated by an annual amount equal to the cost to the owner divided by the number of years' life from the time he acquires it if he buys it, or from the date of the grant if he is the inventor. If a patent becomes obsolete before it expires, it may be written off completely in the period when it is abandoned. Since many patents do thus obsolesce before they expire, it is well to provide a reserve from surplus against such contingencies.

Copyrights and Trade-Marks.—Copyrights and trade-marks should be valued at cost, which is ordinarily very small. However, these assets may have been purchased at great price. Since the trade-mark does not expire, the Income Tax Regulations do not allow it to be depreciated. Copyrights, on the other hand, run for twenty-eight years, and may be renewed for a similar term. The Income Tax Regulations allow them to be written down on the basis of the 28-year life. Most copyrights become valueless in a very short time, and when this is the case they should be written off.

Leaseholds.—When payment is made for a leasehold, the contract constitutes a deferred asset and should be spread over the term of the lease by writing off equal amounts into the rent account each year. If, however, a firm has made a long-time lease, and later finds that the land is worth more per period than the contract rent, the value of the leasehold is the present value of the differences between the contracted payments of rent and the payments which would have to be made if the lease were being determined at the time of valuation. Such a leasehold value is an intangible asset. It should not be placed upon the books under ordinary conditions, but a conservatively appraised leasehold may be entered for purposes connected with the negotiation of a sale or a bond issue, provided the contra credit is to an appropriate reserve account.

Summary.—Land held as an investment should be valued at full cost including the expense of improvement. Surplus reserves should cover the amounts by which market value falls short of carrying value as thus determined.

As permanent investments, bonds are valued at cost, amortized for the expiration of the premium or the discount. Since bonds are usually purchased on a yield basis, the interest rate upon which amortization computations should be based is usually known at the time of acquisition. In case there is reason to expect default of payment, a surplus reserve should be set up to cover the probable loss.

Minority holdings of stock are valued at cost unless a serious decline in the financial condition of the corporation necessitates the setting up of a valuation reserve out of surplus.

Controlling holdings of stock may be valued at cost, but are better valued at cost plus proportionate shares of the profits of the subsidiaries, minus proportionate shares of the losses of subsidiaries, and minus dividends declared by the subsidiaries payable to the holding company.

Stock rights should not appear on the balance sheet, but the Income Tax Regulations make it necessary to book income or loss when the rights are sold, and accounting for these incomes or losses affects the carrying value of the stock owned.

Life insurance policies should be valued at the cash surrender value.

Goodwill should never be set up unless paid for or required by contract, or as an aid to selling a business. It should be valued at cost whenever possible. No valuation of goodwill is satisfactory.

Franchises may be valued at cost less proportionate expiration.

Organization expenses should be written off gradually.

Patents and copyrights should be valued at cost less proportionate expiration.

Trade-marks should be carried at cost.

Unless paid for, leaseholds should seldom be entered on the books as assets. If it becomes necessary to enter a leasehold as an intangible, the valuation may be the present worth of the anticipated savings in rent from what would be charged if the lease were being written at the time of appraisal. The leasehold value should be written down on the basis of the life of the contract, and there should be a valuation reserve equal to the amount written on the books.

In the discussion of valuation in these three chapters an attempt has been made to develop principles which the student can apply to any cases that confront him in practice. If a number of specific types of assets have been treated, the aim has been to present either the peculiar nature of the assets or a peculiar treatment which is customary.

QUESTIONS

1. Does a cash surrender value of a life insurance policy fulfill the definition of an investment given in the first section of this chapter?
2. Why should advances to subsidiaries be separated from investment in stock of subsidiaries on the balance sheet?
3. If a corporation buys its own bonds payable on the open market, should they be listed as an investment on the balance sheet? If the trustee of a sinking fund holds these bonds in the fund and collects the interest on them, do they constitute an asset of the issuing corporation? How would you present the situation on the balance sheet?
4. A corporation has outstanding 100,000 shares of common stock, par value $100.00 per share, and 100,000 shares of non-participating preferred stock of the same par value. The surplus is $300,000.00. The directors decide to issue 20,000 additional common shares at $110.00 per share, and issue to the stockholders one subscription right for each share of common stock owned. On the day the rights are issued the market price of the common stock is $128.50. What would be the theoretical value of a right?
5. Your firm has 1,000 shares of stock of the corporation described in the previous question which it purchased at $120.00 per share. On the day the rights are issued they sell at $3.00 each. Your firm eventually sells its rights at $4.00 each. What will it report as income from the sale of these rights, and how will the investment account be affected?
6. Explain the formula for the theoretical valuation of stock rights.
7. In Moody's *Manual of the Industrials* look up six corporations of which you hear very frequently. Report on the intangible items in their balance sheets.
8. In Moody's *Manual of the Utilities* look up six of the most promi-

nent utilities operating in your vicinity. What intangibles do you find on their balance sheets?

9. Discuss the accounting for land held for speculative purposes. Assume that it is sold eventually (a) at a profit, (b) at a loss.
10. How should one value the assets held by a trustee for a sinking fund to pay off an issue of bonds?

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CHAPTER VI

VALUATION OF LIABILITIES AND NET WORTH

The Problem of Listing All the Liabilities.—All interests in property are covered by the one word "equities." The interests of creditors are liabilities and the interests of owners are called net worth, capital, or proprietorship. The equities of owners are subordinate to those of creditors. At first thought, it might seem that there is no problem in valuing equities. Liabilities do not depreciate, nor are their values appraised upward; except for accruals and deferred incomes, their amounts remain constant whether they were incurred for the acquisition of fixed assets or for the current running expenses. Neither do liabilities fluctuate as the market prices of commodities and securities rise and fall. Similarly, if net worth is the residuum after the liabilities have been deducted from the amount of the assets, it depends on the values attached to those assets and on the obligations definitely created by contract and by law.

Therefore the chief difficulty connected with the valuation of liabilities is in making sure that every item is listed at the amount determined by law or by contract. Moreover, there must be careful discrimination between liabilities and items of net worth, and the proprietorship values must be distributed correctly among the various capital accounts.

To be specific, there is danger of omitting from the books and the balance sheet a considerable group of obligations which do not press themselves upon the attention of the bookkeeper. Everyone trained in accounts recognizes that interest, wages, rents, taxes, and many other obligations accrue, under law or contract, with the passage of time. The great chance of error lies in neglecting some of these accruing items when the books are adjusted and closed. There are two precautions which should be taken against such omission: first, a careful study of the liability accounts to determine what accruals are apt to exist, and, second, a critical consideration of the operations to discover other probable accruals. For example, the existence of notes payable or of bonds warns the accountant that interest may have accrued; similarly, the occupancy of leased quarters hints of accruing rent. A careful study of operating charges in past periods may throw further light on probable accruals. The valuation of an accrued liability is usually a matter of simple arithmetic, like the computation of wages or interest or royalties, but there may be more complicated involvements. For example, the determination of accrued taxes may require a detailed knowledge of a very complex law and the regulations and decisions based thereon, or the estimation of a tax rate which has not yet been set by the legislative body.

At the close of each period it is usually found that there are a number of bills for services and supplies which have not been presented. It is impossible to make a precise statement of the liabilities unless these bills are known. Such items are often grouped in a balance sheet as Accrued Expenses, but, as a matter of fact, they are not properly accruals at all. They are current liabilities, akin to Accounts Payable, but not "Trade Creditors." Because of the difficulty of knowing every one of these small items at the end of a period, the actual closing of the books is often postponed several weeks to allow for the presentation of all the bills.

Another type of liability which may be omitted is the deferred income. Probably the best method of preventing the overlooking of these deferments is a careful survey of the income accounts to determine which may contain payments in advance of the rendering of services. The valuation of the deferred liability is usually a simple matter of prorating receipts between services rendered and those still to be furnished. However, some companies have large items of deferred liabilities.

There are several other types of liabilities which are likely to be omitted from the books either by accident or by design. If dividends have been voted formally but are not yet paid, they should appear among the current liabilities. If sales have been made for a consignor, even though the entire shipment has not yet been disposed of, the liability should be set up. And if goods have been purchased so that title has actually been acquired, even though the stuff is not in possession, there is a real liability. It should be realized that the items mentioned are illustrations from a large group of liabilities that are easily overlooked when the books are closed.

Perhaps the liabilities most often neglected are those which are contingent, such as the chance of adverse judgments in lawsuits, possible obligations to make good on contracts which have not been completed in accordance with specifications, negotiable instruments and accounts which have been guaranteed by endorsement, guarantees of products or of merchandise, amounts which may become due on owned stock which is not fully paid, the liability to an assessment on stocks owned in banks and insurance companies, the liability to assessment by mutual or reciprocal insurance organizations, liability as bondsman or guarantor of performance by some other person, and

unprofitable purchase commitments. These contingent liabilities are of different degrees of probability. A very remote contingency does not need to be shown on the books or on the published statements, but no balance sheet can be regarded as completely informing unless it is accompanied by a list of all the contingent liabilities.

Valuations of Liabilities.—In regard to some liabilities there do arise questions of amount. Probably the most familiar of these is accrued taxes, either local or federal; Congress has actually changed the rates of income taxation between December 31st and the succeeding March 15th, and in some states municipalities fix their rates several months after the assessments of property. In such circumstances the tax liability must be estimated as exactly as possible in view of the basis of assessment and the observed change in rates.

Similarly, when debts owed to foreigners are payable abroad, there may be uncertainty as to the future course of exchange. Probably the best criterion of value for balance sheet purposes would be the rate for foreign bills maturing close to the date when the debt falls due.

When former employees have been pensioned, when present employees are working on promise of pensions, and when an organization is a self-insurer under a workmen's compensation law, the liability for pensions or compensation should be computed on an actuarial basis.

Liability to executives or to other employees under bonus or profit-sharing plans is frequently somewhat difficult to calculate if the extra reward is to be a percentage of net profit after the deduction of income taxes and if the bonus or share of profits is a deductible expense in computing income for tax purposes. Simultaneous algebraic equations may be necessary to determine such a liability.

When trading stamps or coupons are outstanding and may be presented for redemption, the best valuation of the liability is that based on the proportion of the stamps issued within several recent periods which past experience shows will probably be presented for redemption.

It is not usual to deduct open discounts from the sum of accounts payable, although this is sometimes done. Indeed, good accounting authority upholds such deduction of purchase discounts provided the rate is higher than 2 or 3 per cent and provided the cash position is such as to assure the ability to take such discounts.[1]

When property has been purchased subject to a mortgage but the debt has not been assumed by the buyer, the new owner cannot be held for the mortgage, but foreclosure may be had on the property covered. This may appear to be a distinction without great importance, for the purchaser will usually have to pay the mortgage to gain clear title to the property. Yet circumstances might arise in which the solvency of a business might be preserved by the fact that only part of its assets can be taken to satisfy such a mortgage. It has been suggested that when property has been bought subject to a mortgage which is not assumed by the purchaser, the asset may be shown and the amount of the mortgage deducted from it to exhibit only the net equity in the property among the asset totals; the mortgage, then, would not appear among the liabilities. This proposal seems to ignore the fact that, if one desires property enough to buy it subject to a mortgage, he will probably feel compelled to pay the mortgage and retain the asset.

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[1] See also pp. 34-37.

If bonds have been sold at a discount, the liability is the face of the bonds because that is what must be paid. The discount is best treated as a deferred expense and amortized. If bonds are to be redeemed at maturity at a premium, this premium is really part of the debt. If the bonds are originally entered at par, an account showing the liability for the premium should be built up from year to year, the offsetting debit being to interest. If bonds not matured have been called for redemption at a premium, the premium should be shown as a liability.

These examples of liability valuation problems illustrate the wide variety of difficulties that may be encountered in a matter which appears to be simple. The general principles underlying the whole theory of liability valuation are: (1) all liabilities should be recognized; (2) all contingent liabilities should be noted or placed on the balance sheet; (3) liabilities, the exact amount of which can be determined, should appear in statements at that value; and (4) liabilities which cannot be determined exactly should be estimated by a method especially adapted to the type of obligation involved.

Distinction Between Liabilities and Net Worth.—There are occasional cases in which it is difficult to decide whether a particular item is a liability or part of net worth. For example, the loans of partners to their firm usually appear in the accounts as liabilities. Actually, however, all debts to outsiders must be paid before anything is given to the partners. Therefore these loans are really net worth items. Likewise, if the stockholders have made loans to a corporation and then agreed that these loans shall be subordinate to all other debts, their loans are essentially a part of the net worth with a claim ahead of preferred stock. On the other hand, there have been purported issues of preferred stock in which dividends and principal were so secured that the courts have held them to be bonds.

There must be discrimination, moreover, among items called "reserves." True reserves are appropriations of surplus, and therefore part of net worth. But a Reserve for Taxes is a liability and should be classified among the current obligations. It would be best to confine the use of the term reserve to appropriations of surplus.

Thus whenever an item appears, the exact nature of which is in doubt, the contract or circumstance should be analyzed to determine whether the account represents a liability or a part of net worth.

Capital Stock with Par Value.—Net worth as a whole is dependent upon the total value of the assets and the amount of the liabilities, but there are many vexing problems concerning just how to value the several items composing proprietorship, and, indeed, as to just what these items are. Attention will be directed first to capital stock, then to surplus and to treasury stock, and finally to "book values."

The entries for placing capital stock on the books are doubtless familiar to the reader. When stock has par value, the most common opening entries are journalized as follows:

A.	Unissued Capital Stock	xxxx	
	Capital Stock		xxxx
	To record authorization of ——— shares of ——— stock, having a par value of $——— per share.		
B.	Subscribers to Capital Stock	xxxx	
	Unissued Capital Stock		xxxx
	To record acceptance of subscriptions ———, 193—, as follows:		
C.	Cash (or other asset accounts)	xxxx	
	Subscribers to Capital Stock		xxxx
	To record payment of subscriptions to Capital Stock in ——— as follows:		

It should be observed that the account names should be exactly descriptive of the issue being recorded; for example, one might require that the Capital Stock account be designated Common Stock, Class A Common Stock, 6% Cumulative Participating Preferred Stock of Series A, or other appropriate title. Similarly, the unissued capital stock account and the subscribers' account should have specific descriptive names, and there should be a group of accounts for each class of stock.

If the stock is originally subscribed at more or less than par, the second entry above would be:

Ba.	Subscribers to Capital Stock	xxxx	
	Unissued Capital Stock		xxxx
	Premium on Capital Stock		xxxx
	To record subscriptions to ——— shares of stock at $——— per share, as follows:		

or

Bb.	Subscribers to Capital Stock	xxxx	
	Discount on Capital Stock	xxxx	
	Unissued Capital Stock		xxxx
	To record subscription to ——— shares of stock at $——— per share, as follows:		

Sometimes applications for subscriptions are received subject to allotment and accompanied by checks for a specified fraction of the price of the stock desired. Such a situation might be handled as follows:

A. Unissued Capital Stock	xxxx	
Capital Stock		xxxx
To record authorization of ——— shares of stock, having a par value of $——— per share.		
B. Subscription Deposit Fund	xxxx	
Subscription Deposits		xxxx
To record receipt of deposits with applications for allotments of stock.		
C. Subscribers to Capital Stock	xxxx	
Unissued Capital Stock		xxxx
To record acceptance of subscription by Board of Directors ———, 193–. Allotted as follows:		
D. Subscription Deposits	xxxx	
Subscribers to Capital Stock		xxxx
To credit subscribers with amount of their subscription deposits.		
E. Subscription Deposits	xxxx	
Subscription Deposit Fund		xxxx
To record return of their deposits to unsuccessful applicants for allotments of stock.		
F. Cash	xxxx	
Subscription Deposit Fund		xxxx
To record the transfer of the deposits on subscriptions allotted to the general Cash.		

Such elaborate entries are seldom necessary because it is usually possible to return their own checks to the unsuccessful applicants.

Although it may be perfectly within the rights of a corporation to issue stock certificates to the subscribers before the completion of payments on the subscriptions, particularly if the certificates are stamped with the amount or the percentage not paid, it is ordinarily the best practice to withhold the certificates until the last installments have been collected. In order that the opening entries may conform closely to the situation when the certificates are withheld, the following series has been devised:

A. Unissued Capital Stock	xxxx	
Capital Stock		xxxx
To record authorization of ——— shares of stock, having a par value of $——— per share.		
B. Subscribers to Capital Stock	xxxx	
Subscribed Capital Stock		xxxx
To record subscriptions to Capital Stock accepted as follows:		

C. Cash	xxxx	
Subscribers to Capital Stock		xxxx
To record payments on stock.		
D. Subscribed Capital Stock	xxxx	
Unissued Capital Stock		xxxx
To record issue of stock to the following subscribers whose payments have been completed:		

Another method of selling stock includes collecting from time to time such portions of the subscriptions as the directors may demand. If this method is adopted, each time a "call" is voted by the directors the entry will be a debit to an account known as "Call #——" and a credit to the account Subscribers to Capital Stock. As the money demanded is collected, it is credited to Call #——.

Closely connected with these opening entries is the problem of the valuation of capital stock. There seems to be universal agreement that, as long as stock of a solvent company has a par value, all the entries in the Capital Stock account should be at that figure. However, if the stock is issued at a premium, the contributed capital is actually more than the par value of the issued shares. The credit to the premium account therefore represents a real capital surplus, and should be left on the books permanently in the original form. This premium should appear as one of the surplus items in the balance sheet.

Discounts on capital stock at the time of issue are deductions from the nominal value of the shares in determining the contributed capital. In the past, most states have forbidden the issue of stock at a discount, but such laws did not prevent the charging of rather large commissions for "providing the money" or for selling the securities. The present tendency of state laws is to permit the issue of the stocks of ordinary business corporations at a discount, provided the articles of incorporation permit or the securities commission approves. In such instances the shares are allowed to be issued as "full paid." But the discount should not be left on the books longer than necessary; at the first opportunity it should be closed into any stock premium account, earned surplus, or realized capital surplus. Even those states which allow the issue of stock at a discount for merchandising and manufacturing corporations require 100-per-cent cash payments in the organization of banks, trust companies, insurance companies, and other fiduciaries. One of the favorite methods of evading the prohibition of stock issue at a discount has been the acceptance of payment in property or services which are overvalued. As long as the directors have accepted such property or services in apparent good faith, the courts have been hesitant to question their judgment. Therefore there are many cases of the overvaluation of capital stock because of the inflation of the property received in payment for it.

It has been said many times that the value of stock is a capitalization of its earning power. This is doubtless at least partially true of the market value of stock. It has a wider significance, however, in the case of the purchase of a going business by means of stock. The business transferred may be valued at more than the replacement costs of its assets would warrant, the total worth being based on earning power or on some other acceptable basis. Stock issued for such a business is valued at the agreed value of the going concern purchased. This means that the acquired assets should be reappraised by a committee of the directors of the purchasing organization, or that goodwill should be placed on the books. Either of these methods is generally approved, provided the value paid for is real. The first method has the advantage of allowing the appraised excess values to be written off over the course of years as depreciation or depletion. On the other hand, stock is sometimes issued for property which is then appraised above the par value of the stock exchanged, the excess being credited to Surplus. Such "paid in" surplus is obviously a myth to one who takes the realistic attitude that value can be no greater than what is secured in exchange, unless the cash market value of the stock at the time of exchange is equal to the appraised value of the assets. In valuing property received in exchange for stock, the safe rule is to be as conservative as if the property were to be paid for in cash.

When some class of stock is subject to redemption at a premium, this characteristic should be indicated in the heading of the account and also in the balance sheet, for such a premium would have to come out of surplus and would considerably affect the book values of junior securities. The same principle applies to classes of stock which are to be paid off at a premium in case of liquidation.

Stock without Par Value.—There has been a great expansion in the use of no-par-value stock in recent years. When stock without a par value is authorized, it cannot be set up on the books as having financial worth, but the account, No-Par-Value Stock, should be placed in the ledger with a notation of the number of shares provided. When subscriptions are accepted the entry would be:

Subscribers to No-Par-Value Stock	xxxx	
No-Par-Value Stock		xxxx
To record subscriptions to ——— shares of no-par-value stock at $——— per share, as follows:		

The subsequent entries are similar to those for stock having a par value. It will be noticed that the value of the stock is exactly what the subscribers agree to pay for it. This is true even when successive lots are sold at different prices. Thus there can be neither premium nor discount in connection with stock without par value.

The laws of some commonwealths provide that there shall be a "declared" or "stated" value of the issue of no-par-value stock. In such circumstances the heading of the account should be:

No-Par-Value Capital Stock
Authorized ——— Shares: Stated value $———,

and the stated value should be shown as part of the description of the item in the balance sheet. Although some authorities hold that in some commonwealths any sums received for the no-par-value stock in excess of the stated value are legally available for dividends as true surplus, the weight of opinion seems to be that the very essence of issuing stock without par value is the valuation of the original capital contributions at exactly the worth of what is paid in. Hence, even though the law may allow the treatment of capital contributions in excess of stated value as surplus, the logic of the matter is to value capital stock at precisely what is received for it. Similarly, where state statutes provide for a "stated value per share" for no-par-value stock, this stated value should be considered a minimum price at which the securities may be issued, rather than the value which is to be placed on the books. In accounting for capital stock without par value, therefore, the fundamental principle is to break entirely away from any concept related to par value or a substitute for it.

This principle has great pertinancy when no-par-value stock is issued in exchange for property. The property may be placed on the books at a conservative appraisal, and the stock valued accordingly. This obviates the apparent business necessity of overvaluing property to conceal what is essentially a discount when par-value stock is used.

Frequently no-par-value preferred stock is issued with the provision that it may be called for redemption at a certain price, or that it shall be liquidated at a certain value in case of dissolution. Such liquidating or redemption value should be indicated clearly in the caption of the stock account and in the description of the item in the balance sheet. If this liquidating value is greater than the issue price, some accountants would set up the preferred stock at the liquidating value. For example, if 1,000 shares of 5% no-par-value stock, liquidating value $100.00 per share, are issued for $70.00 per share, and 10,000 shares of no-par-value common stock are issued at $10.00 per share, the preferred stock will be set up on the books at $100,000.00. The question then arises what to do with the $30,000.00 of quasi-discount. This is generally subtracted from the value of the common stock, making the common stock appear as $70,000.00. The idea is that of the total contributed capital $170,000.00, the holders of the preferred stock are entitled to $100,000.00 before any liquidating dividend may be paid to the holders of common stock. This virtually sets up a par value for a stock nominally without par value; but it seems to represent the legal relationships accurately.

When a corporation changes an issue from a par value to no-par-value, the correct entry to indicate the transition is

Capital Stock	xxxx	
No-par-value Capital Stock		xxxx
To record change of capital stock from —— shares of $—— par value each to —— shares having no par value.		

There is no necessity of writing off accumulated surplus into the new Capital Stock account—indeed, such action is not considered justified unless the directors formally vote for it. In that case the action is in effect a stock dividend, for it changes distributable surplus into permanent capital.

On the other hand, when no-par-value stock of a corporation is given in exchange for the shares of an old corporation which is to be dissolved, the proper valuation for the no-par-value stock is the book value of the shares for which it is exchanged. This case differs from the one immediately preceding in that the shares are issued in payment for the net assets acquired and so should be valued at their net worth as shown by the books.

A final vexing problem is that of a bonus of no-par-value stock. When such shares are issued as a bonus, they should be assigned no value in terms of money. In states which require a stated value per share for no-par-value stock, the statute is sometimes evaded by concealing the bonus under the title of a discount on bonds or on preferred stock. Summarized, the evasion might be journalized thus:

Discount on Preferred Stock	xxxx	
Cash (or Subscribers)	xxxx	
Preferred Stock		xxxx
No-Par-Value Common Stock		xxxx
To record issue of —— shares of preferred stock, par value —— per share at a discount of ——% and the issues of —— shares of no-par-value common stock as a bonus, stated value of the common stock —— per share.		

Such evasion would be superfluous if the statute required merely a "stated" value on all the no-par-value stock and if there had already been received cash or property of a value equal to the legal minimum in payment for no-par-value stock. In presenting this method of evading a stated-share-value law, the author does not mean to express approval.

Surplus.—In general, surplus may be classified as "earned" or as "capital" surplus. Earned surplus embraces all the additions to net

worth through the profits of operation, including extraneous profits. Even the gain on the sale of fixed assets for more than book value may be classed as earned surplus. Similarly, there is good authority for classing as earned the realized surplus arising from the settlement of debts at less than book value and from dealing in the treasury stock of the corporation concerned even though the latter is not reportable income for federal taxation.

Capital surplus includes premiums on stock issued (sometimes called "paid-in" surplus), surplus arising from the writing up of assets to appraised values, and surplus arising from donations. Some accountants would add profit from the sale of fixed assets and from dealings in treasury stock. In general, dividends may be declared legally from earned surplus and from capital surplus which has been realized, including paid-in surplus. In some states it would appear to be the law that the excess over stated value paid for no-par-value stock may be distributed as dividends. However, it is very widely considered bad business policy to pay out in dividends any surplus not earned. Original capital contributions, even in the form of premiums, should be guarded against dissipation even though the distribution would not violate the law, and it is frequently wise to conserve the profit on the sale of assets, particularly if new assets must be purchased to replace the old.

Surplus available for dividends cannot be measured until there has been proper deduction for depreciation. However, it is perfectly legal to return to stockholders a part of the original capital investment equal to the depletion of wasting assets. In case dividends return any part of contributed capital, the stockholders should be informed as to just what part of the distribution is earned surplus and what is liquidation of original contributions.

Some surplus is not available for dividends because of special laws or contractual obligations. For example, national banks and most state banks are required to set aside a certain proportion of each year's profits until they have accumulated surpluses equal to 20 per cent of their capital stocks. Under the terms of an issue of bonds or preferred stock, a corporation may be obligated "to set aside out of profits" certain amounts for the redemption of the issue; such a contract necessitates the creation of a reserve out of profits or surplus. This appropriated portion of the surplus is not available for dividend distribution until the issue protected has been redeemed or the terms of the contract met in some other way. Reserves voluntarily set aside may be returned to surplus and distributed. The valuation reserves are not part of surplus at all; a better name for such accounts would be "allowances."

Dividends payable in new no-par-value stock involve a transfer from surplus to the capital stock account. The amount to be transferred might be the product of the number of shares to be issued by the average value of the shares already outstanding as shown by the capital stock account; but several other standards of valuation have been advocated, such as the stated value per share, the market value, a purely nominal value, or no value at all. If treasury stock is to be distributed, the valuation will properly be at the rate at which the treasury stock has been priced.

In summary it may be said that surplus available for dividends should be kept separate from surplus not so available, both in the books and on the balance sheets; that in the books, at least, the capital surplus from different sources should be kept in distinct accounts; that availability of surplus for dividends is legally a matter of the interpretation of the state statutes, and that it is wise business policy to distribute as dividends only earned surplus. When there are unpaid cumulative dividends on some preferred stock, the fact should be indicated clearly in the balance sheet.

Treasury Stock of Par Value.—The valuation of treasury stock is usually not difficult. Although there are a few accountants who advocate valuing treasury stock of par value at the cost of acquisition, the vast majority favor valuing such shares at par because the outstanding capital has been reduced by the product of par by the number of shares acquired. On this theory, when its own issued capital stock is bought by a corporation, the logical entry is:

Treasury Stock	xxxx	
Capital Surplus (or Premium on Treasury Stock Purchased)	xxxx	
Cash		xxxx
Capital Surplus (or Discount on Treasury Stock Purchased)		xxxx
To record purchase of ——— shares of ——— stock at $——— per share.		

If the treasury stock is donated the entry will be simply:

Treasury Stock	xxxx	
Donated Surplus (or Capital Surplus)		xxxx
To record the donation of ——— shares of ——— stock by ———.		

Of course the designation of the Treasury Stock account should be precise enough to indicate the exact type or class of stock acquired. Logically the surplus from the acquisition of treasury stock is not determined until the shares have been disposed of. If donated stock is resold, the donated surplus will be diminished or increased by the discount or the premium realized. If the gift shares are canceled, the donated surplus is fixed at the par value of the stock thus retired. If purchased stock is resold at a price different from par, the variation will be carried to the Capital Surplus account, or the Premium or Discount account involved. When all the shares have been disposed of, the resulting surplus or deficit will be fixed or realized.

Should property be purchased with treasury stock, the usual practice is to value the property at the par of the stock paid for it. This may be accurate. But if the market price of the stock is below par, it would be more exact to value the property at the market value of the shares and to debit to Capital Surplus the difference between this market value and the par of the stock. A related suggestion is that when shares are donated, it is usually the fact that stock has been issued for property at inflated values; therefore the par of the donated shares should be credited to the inflated asset accounts rather than to Capital Surplus. However, such accounting would probably not please a board of directors because it would be an acknowledgment that they had overvalued the property in the first place, so neither of these "counsels of perfection" is likely to be heeded in practice.

Treasury Stock of No Par Value.—The logical entry to record the acquisition of treasury stock having no par value is at the cost of the shares obtained, because the amount paid for the treasury stock is the capital withdrawn from the business. If the stock is donated, nothing having been paid, the obvious procedure is to open a Treasury Stock account and to make a memorandum thereon that so many shares have been donated, assigning no value to the account.

However logical this procedure may be, some accountants disregard it, asserting that no-par-value treasury stock should be entered at the price for which those shares were originally issued, the difference between this price and the cost of acquisition being a capital surplus item. If there has been considerable trading in the stock, it may be difficult to determine the original issue prices of the particular shares acquired. This difficulty is sometimes overcome by considering the average price of issue as the proper valuation price for such treasury stock, whether purchased or donated. It is probable that there will be no agreement on the best criterion of value of no-par-value treasury stock for some time.

Book Value of Stock.—The aggregate book value of any class of stock is the sum of the capital stock account for that class and the part of the surplus which would be distributed among the holders of that class of stock in event of liquidation of the business at book values, minus unissued and treasury stock of that class. The book value of a share of any class is this aggregate book value divided by the number of shares of that class outstanding. For example, if there are outstanding 1,000 shares of 7% cumulative preferred stock, par value $100.00

per share, entitled to accumulated unpaid dividends and $110.00 per share in event of voluntary liquidation before any payments are made in liquidation of the common stock, if the preferred dividends are in arrears two years, if there are outstanding 90,000 shares of no-par-value common stock standing on the books at $300,000.00, and if the surplus account shows a credit balance of $12,000.00, the book value of the common stock would be found as follows:

Net Worth per books		
Preferred Stock		$100,000.00
Common Stock		300,000.00
Surplus		12,000.00
		$412,000.00
Less:		
Preferred Stock	$100,000.00	
Liquidation Premium on Preferred Stock	10,000.00	
Dividends in arrears	14,000.00	124,000.00
Net Value of Common Stock		$288,000.00
Net Value of Common Stock per share, $288,000.00 ÷ 90,000.00		3.20

The calculation of book value is rendered difficult if there are several classes of stock with complicated claims on the surplus, and in such cases a careful analysis of the situation is necessary.

The Capital Accounts of Sole Proprietorships and of Partnerships.—Partnership adjustments are so discussed in Chapter XIX that little need be said here as to the valuation of partners' capital accounts. The net worth of the partnership includes the balances of loan and drawing accounts as well as of capital accounts. However, a special partner in a limited partnership might make a loan to the firm which would rank with the claims of general creditors. In valuing partners' interests in a business, the important points are the correct determination of profits or losses and the distribution of these gains or losses among the firm members strictly according to their contract. Similarly, the true capital of a sole proprietor includes, in addition to the capital account, the personal or drawing account and any contributions of the owner which he may have recorded as loans or advances.

Summary.—The most frequent problem in valuing liabilities is to make certain that all obligations are accounted for. Accrued obligations and deferred liabilities are valued by arithmetical calculations based on the terms of the contracts or laws involved, but some of these computations may be so intricate as to require the services of actuaries or tax experts. Although many contingencies are quite remote, no balance sheet is absolutely accurate unless it exhibits on its face or in appropriate footnotes all the contingent liabilities.

The value of net worth as a whole depends upon the total value of the assets and the amount of the liabilities. When stock is issued in payment for services or properties, the valuation put on the services or properties determines the value placed upon the stock. Capital stock of par value is placed in the Capital Stock accounts at par, but discount and premium accounts may be considered valuation accounts. Real discounts are sometimes concealed in inflated property valuations.

No-par-value stock should be entered at the issue price, even if the state laws provide for "stated" values. The use of no-par-value stock was designed to obviate the custom of overvaluing assets purchased with stock, because the question of discounts is eliminated when there is no par value.

Treasury stock is best entered at par when such nominal value exists, or at the exact amount paid for no-par-value stock. But there is good authority for entering no-par-value treasury stock at the issue price of shares acquired or at the average issue price of the shares outstanding at the time of acquisition.

Real surplus must be distinguished carefully from those liability and valuation items which bear deceiving names, such as "reserve." There should be separate accounts on the books for earned surplus and capital surplus of each type. Surplus available for dividends should be distinguished carefully from surplus not available.

QUESTIONS

1. What methods are available for determining whether all of the accrued and deferred liabilities have been accounted for? all of the contingent liabilities?
2. The reinsurance reserve of a fire insurance company is a liability. In what respect is it different from an account, "Reserve for Self-insurance," on the books of a manufacturing company which has a considerable number of scattered plants?
3. In what circumstances might a leasehold owned involve a contingent liability?
4. Describe the difference between buying property and assuming the mortgage thereon and buying property subject to mortgage. How does this difference affect valuation?
5. What are the points to be considered in determining whether an item is a liability or a part of net worth?
6. Work out a series of opening entries for no-par-value stock similar to those for par-value stock on page 128. The purpose is to keep such accounts as will not show stock as issued or outstanding until payments have been completed and the certificates have been issued.

7. Discuss the relation of legal right and business expediency in determining the wisdom of dividends.
8. Compare the three methods of valuing purchased treasury stock of no par value. Place these methods in the order of your preference, giving your reasons.
9. Discuss the relation of "stated" values and of "redemption" or "liquidation" values of no-par-value stock to the valuation of such stock on the books and on the balance sheet.
10. Report on the statutes of your state as they affect the issue of no-par-value stock and the legality of dividends.

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CHAPTER VII

INTERNAL CHECK AND AUDIT

Need for Internal Check.—The last six chapters have been concerned with the problem of making statements good as to form and accurate as to content. Of the two qualities, accuracy is more important than form. But no knowledge of the methods of valuation can insure precision in statements unless the books are kept correctly. Therefore, it is necessary to describe the methods of preventing errors in the bookkeeping, the subject of this chapter, and to present the methods of correcting such mistakes as do occur, which is considered in the following chapter.

Errors in the books may be either intentional or unintentional. Intentional errors may be made in order to cover theft, conceal losses, make a better showing for credit purposes, falsify the statements so as to influence the price of stock or the decisions of regulatory bodies, win bonuses for higher efficiency, evade taxation, manipulate profits in companies having gain-sharing plans, and for other purposes. Most systems of internal check are introduced to prevent such intentional errors and to eliminate or minimize the unintentional mistakes. No system of internal check can prevent a deliberate policy of misrepresenting profits or financial condition on the part of the management; only an audit by an unprejudiced outsider can reveal such planned manipulation.

In order to vivify the problem of internal check and audit, it may be well to point out some of the types of dishonesty which can be prevented by well devised systems of accounting. Fraudulently taking funds or property intrusted to one, and devoting them to one's personal use is embezzlement or defalcation. Most of these misappropriations are relatively small amounts of cash or securities taken by persons in positions of trust; but it is estimated that the annual losses in the United States from embezzlements amount to an average of $125,000,000.00. The methods of these defaulters are legion. Cash stolen before it has been entered on the books is very hard to trace; for example, if a cash sale is made, the salesman may keep the money, making no report or record of the transaction. Since the customer has taken the goods, no act of his can be expected to reveal the theft; unless accurate records of the merchandise are maintained the loss of the goods may never come to light, and even if the stock is short, shoplifters can be blamed. Another trick is for a cashier to make overpayment to some creditor and then claim a refund, misappropriating it when the money comes. If the cashier has charge of the books, thus being able to enter a purchase at an inflated sum equal to the intended misappropriation and forges or raises the original invoice, even an audit may fail to uncover his dishonesty.

It is somewhat more difficult to conceal the misappropriation of collections, because debtors demand receipts and object to paying the same bill twice. However, such thefts may be concealed by the process known as "lapping." For illustration, suppose that on November first A remits $100.00, which is taken by the cashier who makes no entry on the record of cash receipts. However, A's account must show a credit; so in a few days, perhaps on the fifth, when B makes a remittance of $100.00, the cashier enters it as a collection from A, and posts it to his credit. A few days later, say on the twelfth, when C sends in a check for $100.00, the cashier credits B, and so on. If these checks are of different amounts, he makes adjustments in the currency. For example, if B had paid $105.00, the cashier would have taken $5.00 in cash; and if C had then remitted $97.50, he would have put $7.50 in the till. If such manipulation is resorted to, one is forced to keep a private memorandum to prevent any slip which can result in a complaint by a customer whose statement has been "doctored." A long vacation is almost sure to bring "lapping" to light, and defaulters who resort to this practice frequently work for years without a holiday.

Other devices are possible for concealing the theft of collections. Every receipt may be entered properly, but the defalcation may be covered by short footing the cash receipts column and overfooting the sales discounts in equal amounts in the record of cash received. Or the record of cash received may be correct, but the record of cash disbursed be overfooted; or mythical payments may be entered as cash disbursed. Sometimes when a collection is misappropriated no entry is made in the cash book, but there is a journal entry to credit the customer and to debit an expense account, or bad debts, or another customer who may be imaginary or a confederate. Another device is to underfoot the accounts receivable column and the net cash column in the record of cash receipts and to underfoot the debit or overfoot the credit side of one or more accounts in the customer's ledger by equal amounts. Although these artifices by no means exhaust the possibilities of manipulating the books to conceal the theft of cash receipts, they are comparatively common and serve to illustrate the burden which is placed upon the system of internal check.

Even when cash has come into the possession of the organization and has been recorded on the books, there are still ways for concealing its theft. Unauthorized checks may be drawn, an expense account being charged, but the payee being the cashier or a confederate. When these checks are returned by the bank, and after they have been used to reconcile the bank and cash book balances, they are destroyed to obliterate all evidence of the fraud. Payrolls are notoriously a source of plunder: mythical names may appear and the pay envelopes be appropriated; the amounts due actual employees may be raised, and, although these persons receive the correct amounts, the difference is misappropriated; the paymaster may fill and take pay envelopes for employees who have been absent on account of sickness; even the discharged and the dead figure as dummies. Sometimes imaginary purchases are recorded from imaginary creditors, payments being made in the regular course of business, but the payee being the defaulter or a confederate. Money may be taken from the drawer and receipts for its payment forged, or valid receipts may be raised; or the cash disbursements column in the cash record may be overfooted while the purchase discounts column is correspondingly short footed.

Stealing is not confined to cash, however, as securities, merchandise, tools, and supplies are even more exposed. As opportunity arises, employees may simply walk off with tools, with supplies that they need for their own use, or with more valuable materials, such as copper and lead. Merchandise is sometimes shipped to confederates who sell it and disappear before payment can be enforced. Possession of stores or of merchandise may be obtained on forged requisitions which are regularly entered on the books. Valuable securities may be taken and sold by those having access to them, their absence being explained by some such plausible story as that they are pledged to secure some loan—the defaulter may even pay the interest on filched bonds regularly for a long term of years before his theft is discovered. Occasionally a trusted official forges signatures on stock certificates or unissued bonds and uses these securities to hypothecate with a bank from which he borrows.

Most of these misappropriations are uncovered by audits of the accounts and records by professional accountants. But their revelation neither restores the missing property nor protects employees from undue temptation. It is better, therefore, to adopt accounting methods which will make virtually impossible either theft or its concealment. Such a system will have to make certain employees definitely responsible for merchandise, materials, and supplies intrusted to them, forestall the forging of documents, render it impossible for one person to manipulate books with or without collusion, and make the misappropriation of cash before it has been posted on the books exceedingly difficult to hide. Although no system of internal check entirely obviates the need for audits by disinterested accountants, such a system may greatly curtail losses, enhance the accuracy of the accounts, and simplify the work of the professional auditor.

There is another type of dishonesty that results in betrayal of the employer's interests. Although it may be decreasing, bribery still exists in business. Bribes may be given to purchasing officers in order to induce them to place orders, to inspectors in return for passing construction or goods not up to specifications, to treasurers to secure their company accounts for certain banks, or to adjusters to pass favorably on claims. This may be accomplished so skillfully as to be beyond detection or prevention. It may take the form of apparently innocent presents, or of social preferments; but it is pernicious in its influence. It is possible to install such a routine of handling contracts and inspections as will minimize both the incentive to accept bribes and the possibility of "delivering."

Mistakes occur even in concerns whose employees are impeccable. There may be overpayments or even duplicate payments of invoices; errors in freight bills may go undetected; sales may be charged to the wrong customer; items may be debited to the wrong expense account; revenue expenditures may be charged to capital, or the reverse; original records of transactions may be lost; there may be mistakes in extensions or footings. Guarding against these errors involves the development of a routine that will prevent such losses as duplicate payments, will verify all computations, and will catch slips in accounting technic or principles.

These considerations make evident the demand for internal check and audit, that is, for a system of procedure which prevents or minimizes errors, which renders difficult stealing or betrayal of trust, and which encourages proper conduct on the part of employees. An employee known as the "auditor" may confine his efforts to preventing mistakes in a very small field of transactions, he may supervise a complete system of internal check, or he may examine the accounts and records of branches and divisions in the same way as would an outside auditor. The exact system of internal check to be adopted depends on circumstances, and on the size and organization of the business. In the following pages will be described some of the devices in common use to protect the most usual points of danger.

Check of Materials and Merchandise.—As has been intimated there are many possibilities of loss connected with the handling of merchandise and raw materials, among which are unwise purchases, placing orders in consideration of bribes or other unethical inducements, the acceptance of goods which fail to conform to specifications, short counts on deliveries received, deterioration of stocks, loss of stores by theft, waste in production, shipments to individuals who are not legitimate customers but confederates of employees, and overcount on out shipments. Although this list is not exhaustive, it is sufficient to emphasize the necessity for a systematic accounting which will prevent such losses as far as possible and reveal those that are unpreventable.

Purchasing should be safeguarded to prevent mistakes, extravagance, and fraud. Perhaps the most important protection is to divide the purchasing function, thus making it impossible for goods to be ordered and used by the same individual. This is accomplished by a requisition system, the signature of the foreman or department head being necessary on any order on the purchasing department; the order must in addition specify the quantity and quality of the material needed. This requisition authorizes the purchasing agent to place the order, and he must be able to offer a satisfactory explanation for any change in its specifications. A limit is often set on the size of a purchase order which can be put through without the special approval of the general manager. In department stores a parallel practice sometimes requires the approval of the merchandise manager on all orders placed by departmental heads or buyers. A further precaution lies in securing competing bids before the order is placed. While it is true that these methods do not absolutely insure wisdom and honesty in purchasing, they can be made very effective, particularly if specifications are established by a special department, if department heads are checked carefully on achievement, and if outside auditors investigate the faithfulness with which the routine is followed.

The second point at which a check is necessary on materials and merchandise is in their receipt. It has been found wise to include on the purchase order all the terms of the contract, in addition to specifications, and to require that the order number appear on all packages, invoices, packing slips, and anything else related to the transaction. Thus when goods arrive the count can be verified against a carbon of the original order, their quality can be inspected by someone not connected with the purchasing agent, and the invoice can be examined to see that it is arithmetically correct, that its terms agree with the contract, and that its claims accord with actual deliveries. Goods received in retail stores are often sent by the receiving clerk to the marking room where prices are tagged, and then delivered either to the warehouse or to the forward stock; in factories the materials may be delivered direct to the job or placed in stores. In either type of business, responsibility is often secured by requiring a receipt from the keeper of the stores or warehouse, or the section head or foreman for all goods delivered to him; goods can be issued by him only upon requisition, shipping order, or sale made over the counter, vouched by sales slip or cash register record. Perpetual inventories, based on receipts, requisitions, and sales documents, and kept by clerks in the accounting office, summarize the accountability of each storeroom or department. Responsibility for stock in chain stores and in those departments of retail stores which handle small items is often secured by charging the manager or section head with merchandise at retail prices, and requiring that stock as inventoried plus cash on hand or remitted plus charge sales equal the value of the stock received. A periodic audit may be made to see that all of the stores and merchandise vouchered have been accounted for by receipts from proper persons.

Guarding the merchandise and stores in possession is thus partly a matter of accountability as outlined in the preceding paragraph, and partly a matter of preventing theft and waste. Theft can be prevented to some extent by storing goods in carefully locked rooms, by requiring permits for employees to carry packages from the building, and by the use of house detectives. These measures are not accounting devices; but the perpetual inventory and the responsibility of a department head for the value of all merchandise or materials turned over to him are distinctly functions of accounting. The prevention of waste is largely a matter of comparing the records of materials used in production with the estimates of the quantities required made by an engineering or a planning department. Excess of consumption over the standards calls for investigation, and there the accountant and the engineer collaborate. Thus, while the prevention of waste, loss, and theft involves much more than records, the principle of accountability for goods may act as a deterrent because, properly applied and adapted to a specific situation, it without doubt reveals shortages.

Some special precautions may be necessary in respect to sales, particularly those in retail stores. Customers are usually not permitted to carry out unwrapped purchases, and the sales person is often required to turn over the articles sold to a wrapper who makes up the package in accordance with a carbon copy of the sales ticket. Thus customers and sales clerks are prevented from collusion, and shoplifting is made difficult. Goods returned by customers are received by special clerks, recorded, and sent to the marking room before they are again placed on sale, thus making it impossible for a sales clerk to take back and resell the goods for his own personal profit. In factories and wholesale houses, as well as in retail stores, careful control of deliveries must be exercised. Orders are not accepted until they have been passed by the credit department. After this approval has been stamped on an order, a sales invoice in duplicate, a packing order, a shipping order, and a packing slip can be made in one operation. If the stock is on hand, the packing order and packing slip are sent to the packing department, the order being used as a requisition on the warehouse or storage room, and the goods are packed, the packing slip being included for the customer's information. The packages are then sent to the shipping department which obtains bills of lading if a shipment is made, or customers' receipts, if they are delivered. The shipping orders accompanied by the bills of lading and the customers' receipts are returned to the accounting department which then posts the customer's account and releases the invoice. This type of procedure prevents any unauthorized shipments, and gives the stock keeper a warrant for his issues. The stock records are posted from a carbon of the invoice.

Systems of controlling materials and merchandise vary considerably with circumstances and with the ingenuity of the accountants, but the cardinal principles are simple. There should be written authority for each step in the movement of goods. There must be a record of the quantities or values with which each person or department is charged, and such records should be kept independently of the stocks by employees who do not handle goods. Physical inventories should be taken at intervals to check with these records.

Auditing Primary Records.—However, the mere guarding of merchandise and materials from loss and theft is not sufficient. It is necessary that the original records be carefully and systematically verified. Upon its arrival, a purchase invoice should be turned over to the accounting department for registration in an invoice register. The bill is then sent to the purchasing department for verification for authenticity of the order covered, for quantities, prices, extensions, footings, terms, and for the incidence of carriage charges. On the carbon copy of the purchase order note will be made of the approval of the invoice, but this approval is usually withheld until the arrival and inspection of the goods. This, however, may be changed if it is necessary to pay for goods before their arrival in order to secure the cash discounts. If the shipment received was short, or if transportation charges which should have been borne by the vendor have been paid by the buyer, the purchasing officer notes on the invoice the deduction which should be made. This practice makes an accidental overpayment or double payment almost impossible. After the invoice has been approved by the purchasing department, it is returned to the accounting department, where the fact is noted on the invoice register and an entry is made on the purchases journal, or the bill is vouchered and entered on the voucher register. Every voucher should be checked by some clerk other than the one who made it, and it should be approved before it is entered. Before they are vouchered or passed for payment, bills for services must likewise be verified in detail to see that they agree completely with the contracts, that the services have been rendered as specified, and that the computations and charges are correct. Many of these bills are sent for approval to the department which received the services; for example, freight bills are referred to the traffic department where they are audited for weights, rates, terminal charges, demurrage, and computations by a clerk who specializes in traffic regulations and rates. Some firms employ outside experts to audit the freight bills.

When vouchers are taken from the unpaid file to be passed for payment, they should be accompanied by a list which details their numbers, amounts, and payees. As each voucher or invoice is approved for payment, it should be marked distinctly so that it cannot be presented a second time. The list of the vouchers approved should be kept by the officer who passes upon them for subsequent use by the auditor. Similarly, when checks have been drawn to pay these vouchers and are submitted with the vouchers to the treasurer for his signature, a list of these checks should accompany them, giving the number, amount and payee of each check, and the number of the voucher paid. As the checks are signed they should be compared with the vouchers and the list, and each voucher should be marked in such a way that there can be no doubt that payment has been made. The treasurer's list is kept by him for the auditor's use. Such precautions make it almost impossible for the same invoice or voucher to be paid twice.

The payroll is generally made up from clock cards, and it should be verified from the daily time reports in case a system of cost accounting is in use. It should also be certified by the personnel department or other employing officials in order to make certain that the wage rates are correct, that employees are not paid for time when they did not work, and that there are no dummy names. The amounts put in the pay envelopes should be counted twice, each time by a different person, or these envelopes may be filled by the bank. The person who actually pays the employees should not be the one who makes up the payroll, and the act of paying should be witnessed by someone from another department. The employees should receipt for their wages as they are paid, preferably by signing the clock cards, and these receipts should be filed. Any envelopes unclaimed should be listed by the paymaster and the witness, and reported immediately to the accounting department.

In most retail houses it is possible to control sales of forward stock by means of sales slips and cash registers. Wholesale establishments and manufacturing concerns achieve accuracy by comparing sales orders with shipping orders, packing slips and sales invoices.

The issuing of credit memoranda for sales returns and allowances, or the correction of invoices, should be in the hands of section heads or of the accounting department. In a retail store all goods returned should go through the marking room, and in a wholesale or manufacturing establishment they should go through the receiving room, proper receiving reports being made out, thus making possible an independent verification of the credit memorandum for the return. Credit memoranda, like requisitions and sales slips, should be numbered serially in order that all may be accounted for. No allowances should be entered in the journal without written authorization to the bookkeeper. Adjustments with either customers or creditors should not be intrusted to the cashier.

Credit memoranda received on account of purchase returns and allowances should be checked against the shipping orders covering the goods returned, and against the correspondence and invoices or vouchers, to make certain that there are adequate allowances and no overpayments. Whenever claims are made for allowances or returns, they should be recorded in a register, or carbon copies should be put in a tickler file in order that they may be followed up and pressed if necessary. Journal vouchers should be made for authority for journal entries, or a responsible official may sign each entry as a check on its validity.

In brief, every primary record should be compared with other records of the same transaction or else approved by some disinterested person in authority, and it should be audited for mathematical accuracy.

Cash Receipts.—Cash comes into the possession of business firms over the counter for sales, through the cashier's window and by mail in settlement of accounts, and through the hands of collectors. There are ways of safeguarding each of these means of receipts.

The customer's aid is of especial value when cash is taken directly over the counter for sales. When cash registers are used, a large per cent of the customers watch to see how much is "rung up," claiming the difference if the amount shown is less than the price quoted to them. This customer aid is more effective if the sales clerks are required to place a cash register receipt on the package as it is handed to the patron, for most customers glance at this receipt before throwing it away. Sometimes, where many clerks use the same cash register, there is only one drawer, which is in charge of one person. The salesgirl pushes the keys and hands the money over to the cash register clerk, who makes change if necessary. Some patrons, however, may be so hurried as not to watch the cash register, and there are clerks who quickly learn to know such customers and to take advantage of them. However, an additional check can be introduced by charging each section of the store with the retail prices of merchandise it handles.

In departments where purchases are larger in amount and where speed is not so important in dealing with customers, the sales slip system is widely used. The sales clerk makes out the slip in triplicate, takes the money from the customer, naming the amount, enters this amount on the slip, and sends the original and the first copy to the receiving cashier, who returns the first copy of the slip and the change, if any. Meanwhile, the package is being wrapped, either by the sales girl or a special wrapper. When the copy of the sales slip comes back, the sales clerk attaches it to the parcel, counts the change into the hand of the customer, and presents the parcel. If there are special wrappers, both money and sales slips pass through their hands. While this procedure does not insure honesty, it enlists the customer's services in this respect. The actual counting of change by the sales clerk prevents giving the customer a wrong amount through an error of the receiving cashier. The latter has to account for his money as shown by the sales slips. It would be difficult to lower the amount on a sales slip, but even if this were done successfully it would be detected by the audit in the accounting department, which checks the sales slips against the copies left in the sales book. An attempt to sell goods to confederates at less than the marked prices would be detected by the wrappers, by the audit of the sales slips for clerical accuracy, by their comparison with the tags removed by the wrappers, or eventually by the check of the physical and the book inventories. None of these can prevent an occasional error, but most mistakes are caught before serious damage has been done, thus making dishonesty very difficult because it requires collusion between individuals who may not ever see each other.

When customers enter a store to make payments on account, the cashier at the window to which they go is usually different from the one who handles the money coming in from cash sales. If they have their bills with them, they are stamped "paid," but otherwise they are usually given numbered receipts. Thus the customer has a definite receipt for what he has paid. Carbon copies of the numbered receipts are sent on by the cashier to the bookkeepers. The cashier makes out a numbered posting slip for each bill which is paid in full, and these slips also go to the bookkeepers; and he keeps a record of the payments received on a "blotter." It is usually best for the cashier to have absolutely no access to the ledgers; if a customer asks him for a bill, he may refer him to the bookkeeper's window or telephone the ledger clerks for a copy of the statement. Nor should this receiving cashier open mail. This affords a final check on his honesty, depending largely on the customers; it angers most people to be billed for amounts already paid, and complaints will be made if monthly statements demand duplicate payments. If a complaint comes through the mail it cannot be intercepted by the cashier without access to the mail; if the complainant comes in person he will go to the manager or the bookkeeper. It is therefore so dangerous for the receiving cashier to take cash and withhold credit from a customer that no one in his senses would attempt it. Those who work on the ledgers cannot get the cash if they wanted to. However, collusion between bookkeeper and cashier is possible, but this danger can be lessened if the credit department frequently inspects the customers' ledger and sends collectors to those shown as considerably in arrears.

Remittances through the mail are best handled by the "check list" system, the person who opens the mail listing all cash and cash items on a form which shows the date, the remitter, the amount and in some cases, the item for which settlement is made. Post dated checks should be especially noted on this list. The remittances are given to the receiving cashier with the accompanying letters or statements, and he enters the items on his blotter and makes out the numbered posting slips for the bookkeepers. The cashier should make bank deposits at least daily, retaining duplicate deposit slips. The check list goes to the auditing department, which by comparing daily this list, the duplicate deposit tickets, and the receiving cashier's blotter can thus discover any withholding or lapping of funds. The weakest point in the check list system is the opening of the mail. Checks made out to the firm are ordinarily safe, because banks will accept such checks only for deposit to the credit of the firm;—specific instructions on this point should be given to the banks. However, if currency comes in by the post, it may be taken by the employee handling the mail. This person should have no access to outgoing mail or to the ledgers or journals, thus making it impossible for him to manipulate accounts or intercept statements. Since he is in a position to intercept complaints made by letter, there should be frequent rotation of employees on this particular routine.

Collectors who make personal calls should be equipped with serially numbered pads of receipts and should be required to give a receipt to each person from whom they receive money, the carbon of which is to be turned in to the office. All receipts must be accounted for. The credit officer or the head of the collection department should consult the ledger frequently to find out what customers are shown to be in arrears, and these should be called on by special agents who can quickly discover whether collected funds are being withheld. Collectors should never be allowed access to outgoing or incoming mail or to the books of account, nor should they be permitted to wait upon individuals in the store or office itself.

Employees in charge of imprest funds, like petty cash, should be required to present statements and receipts for each payment made. These statements should be approved by an official who is in close enough contact with the imprest cashier to be fairly certain as to the correctness of the payments reported. The receipts should be filed with the statement whenever the fund is reimbursed, and the imprest cashier should not have access to this file, thus making it impossible to use the same receipt twice. It is wise to keep the imprest fund small enough so that rather frequent reimbursement is necessary in order that the items paid may be fresh.

Part of the routine of protecting cash disbursements was discussed in the preceding section, in connection with the safeguarding of invoices and vouchers. All payments, except those from petty cash, should be made by check, and all checks should be countersigned. If the banks are instructed to honor checks signed by any two of four officials designated by resolution of the board of directors, there is no excuse for countersigning checks ahead when one official is to be away, for signing blank checks defeats the entire object of the countersignature. Officers in signing checks should simultaneously mark the vouchers "paid," and should list all checks signed. Whenever possible, the functions of receiving and of paying cash should be vested in different persons. The bank statement should be reconciled regularly by an employee who has no contact with the cash transactions, preferably by someone in the accounting or auditing department. Checks outstanding at two reconciliations should be investigated. Checks should be obtained in books or pads serially numbered, and every number should be accounted for, spoiled checks being marked Void.

Customers' Accounts.—After every sales slip or sales invoice has been audited for conformity to the sales order and the shipping or delivery order, the next task is to see that posting is correct. The best method of insuring accurate posting is the dual method of machine billing and posting. One operator posts all the statements from the sales slips or invoices, and another operator posts the ledger. A strip of paper under a carbon records the balances in the statements after posting, and a similar strip shows the balances in the ledger accounts posted; a comparison of these strips reveals any discrepancies between the billing and the ledger posting, whether in amounts or balances, and these discrepancies are looked up and rectified. If the volume of business is not sufficient to warrant machine billing and posting by the dual system, the duplicate method may be used, the ledger sheet and the statement being made with the same operation. The bookkeeping machine carries a cumulative total of the debits; this can be checked with the adding machine total of the sales slips or invoices to see that the total of the debits is correct. The correctness of the total debits, however, does not insure that the correct accounts have been charged; hence, it is well to put a signal before each account posted, and to have these postings verified from the same sales slips by a different individual, the signals being removed as the postings are checked. In a similar manner the credits to customers are made from the receiving cashier's tickets and the memoranda of returns and allowances. If posting must be done by hand, the signal system may be used to verify the entries. Trial balances of each customers' ledger should be taken at frequent intervals to assure agreement with the controlling accounts. One of the cardinal principles of internal check is that those working on the accounts receivable ledgers should never be allowed to use the journals, the control accounts, or the cash, thus insuring independence and making collusion difficult.

If an account is to be written off as a bad debt, the authorization should come from an official who does not have custody of cash or merchandise which might be stolen. Employees with access to such assets should never be permitted to handle the customers' ledgers, the control accounts, or the outgoing or incoming mail.

Notes Receivable and Securities.—The custody of notes receivable and of securities should be vested in someone who does not have access to the general books. When notes are received they should be given serial numbers and entered in a suitable register. The custodian may be required to receipt for the notes he receives and to secure receipts for those he surrenders. He should keep a blotter showing all the notes in his possession, partial payments, and full payments or discounts. The receiving cashier should endorse partial payments on the backs of the notes involved, giving a ticket to the custodian to account for the loss of value. When notes are collected, they are surrendered to the makers through the receiving cashier. Similarly securities owned should be listed in detail by serial number and issue, and the custodian should have no access to these lists. It is well to keep the original purchase invoices of such securities and the sales invoices rendered by the brokers.

Summary.—The need for a system of internal check and audit grows out of the possibilities of error and dishonesty. The central principles of this system are as follows:

1. To separate the accounts of assets from employees having control of those assets so as to make manipulation of accounts impossible by one who might steal the assets.
2. To verify every original record from which entries are made in the books, before such entries are made.
3. To apportion the work on the records in such a way that each individual performs a task worth while in itself, but complementary to the work of some other individual which it checks.
4. To provide such complete records of the movement of materials, finished stock, merchandise, cash, and securities, that someone is always accountable for the full value of the assets owned.
5. To provide each responsible person, by the use of requisitions, receipts, and approvals, with evidence that he has properly fulfilled his trust.
6. To have each employee's work tested effectively by another disinterested individual. Enforced vacations, exchange of function, and inventories of stock taken by individuals from outside departments are examples of such tests.

The discussion in this chapter has suggested some of the most important methods of internal check, but there has been no attempt to lay down a complete system. Whatever the system, it involves expense, but the prevention of error and defalcation will be well worth the cost, and, in addition, the complete records which result may be invaluable as a basis of policy formation.

Small concerns, particularly those having only one bookkeeper and one cashier, find it almost impossible to introduce complete systems of check because it is impossible for one individual to check the work of another. In such cases every possible device should be used to enlist the unconscious cooperation of suppliers and of customers and the forms for all records should be carefully designed.

Probably no system of check can absolutely prevent theft by employees, or occasional mistakes, but any good system encourages the avoidance of dishonesty and carefulness in bookkeeping. All employees intrusted with the care of valuable assets should be bonded, largely for the moral effect, for it is well known that bonding companies never forget or forgive. No system of internal check can do away entirely with the need for periodic examinations by professional auditors.

It is a moral obligation of every business organization to keep accurate accounts with creditors, customers, and for tax liability purposes. Moreover, it is their duty to the owners to show correct profit and loss statements and balance sheets. Finally, every business house is morally obligated to minimize the temptation of its employees to dishonesty.

QUESTIONS

1. Explain three methods of manipulating the books to conceal the withholding of cash from the treasury of an organization by one of its employees. What methods of check are available to prevent this?
2. If a business organization has adopted the policy of charging each selling department with merchandise issued to it at the retail price, how can it handle marks-up and marks-down?
3. If a business is so small as to employ only one person as bookkeeper-cashier, what methods of internal check are available? Can these methods be circumvented?
4. What procedure can you suggest to prevent bribery in the placing of orders for materials or merchandise?
5. Suppose a retail firm is large enough to employ two persons on the bookkeeping and cashier work. How would you divide their functions?
6. Make a list of all the economies that should result from a good system of internal check in some business with which you are acquainted.
7. Show how internal check may be so combined with present necessary procedure as to minimize the additional expense involved.
8. If a business organization adopts every available device for preventing defalcations and for detecting such as might occur, is it promoting honesty in its employees?
9. Investigate and report upon the system of internal check in use in some local enterprise which you can visit. What improvements would you suggest? (A public utility, a department store, or a chain store would be particularly worth observing, or a factory with a cost accounting system.)
10. Discuss vacations and rotation of work among employees as parts of the plan for preventing fraud.

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CHAPTER VIII

THE CORRECTION OF ERRORS

Types of Errors.—In the preceding chapter were discussed some of the methods for the prevention of unintentional errors and manipulations of the books. Although a good system of internal check in the hands of an able accounting staff will reduce mistakes to a minimum, probably no organization can absolutely and always avoid inaccuracies. Much bookkeeping is handled by persons poorly trained or naturally inept, with the result that mistakes accumulate in the records. These errors may seriously affect the capital accounts. Moreover, there are numberless possibilities of misinterpretation or lack of proper discrimination between capital and revenue expenditures, of overoptimism in valuing inventories, of neglect of valuation factors related to permanent assets, and of deliberate falsification of accounts to make a showing other than that warranted by the facts. Some of these errors come to light when partners are trying to adjust their affairs, when businesses are about to be sold, when questions of taxation are pending, when mergers are being considered, or when estates are being settled. They are often exposed by an investigation by outside accountants. Therefore, although a good system of internal check minimizes errors, one should know how to rectify mistakes in order to be able to bring books into harmony with the facts whenever occasion may arise.

Accounting errors may be classified in various ways. Failure to enter transactions may be called errors of "omission," in contrast with wrong entries, or errors of "commission." Another classification distinguishes errors of principle from mere mechanical mistakes, such as miscalculations and mispostings. Perhaps the most useful classification is based upon the relation of errors to surplus. On this basis there are:

1. Errors which do not affect surplus or net worth, such as debiting the wrong asset account, or crediting the wrong liability account.
2. Errors affecting the surplus, or the net worth:
    - a. Those affecting the profit of one period but which are automatically counterbalanced by their own opposite effect in the succeeding period, such as a mistake in the valuation of the inventory, or a wrong computation of an accrual.
    - b. Those affecting the profit of one period, the effect remaining

on the books indefinitely, even during the life of the corporation, such as a wrong allowance for depreciation or a confusion between capital and revenue expenditures. For example, if some advertising is charged to Goodwill, the mistake carries over during the whole existence of the concern; but if a fixed asset is depreciated regularly at 4 per cent per annum when the rate should have been 5 per cent, the full effect of the series of mistakes will not be eliminated for twenty years unless the asset is retired sooner.

There are almost innumerable subclasses among these types of mistakes. Attention will be directed, therefore, to the adjustments necessary to eliminate the effects of each of the above groups of errors, only the general principles being stated. The rectification of statements will then be considered.

Errors That Do Not Affect Surplus.—It is possible to rectify most mistakes that do not affect the profit and loss account by a simple journal entry transferring the item from the account to which it was wrongly posted to the account in which it rightly belongs. If, for instance, a sale on account has been debited to the wrong customer, the correction may take the form:

Actual Purchaser (by name)	xxxx	
Purchaser Wrongly Charged (by name)		xxxx

This entry may be made formally in the general journal, or less formally by means of a debit-credit ticket which is posted and filed. If the customers' accounts appear in different ledgers, the controlling accounts must also be corrected. Similarly, if an improvement to a fixed asset has been debited by mistake to the reserve for depreciation, the rectification might take the form of a simple journal entry, such as:

Machinery	xxxx	
Reserve for Depreciation of Machinery		xxxx
To charge Machinery with the cost of ——— which was debited in error to the Reserve for Depreciation of Machinery.		

Thus the correction of most errors involves merely the transfers of items by means of entries in the general journal or by means of debit-credit tickets; but mistakes in handling complicated transactions may need a somewhat more elaborate rectification. If the original erroneous entry was complicated, the best corrective procedure may be to reverse it and then to record the transaction from the beginning. To illustrate, suppose that a note receivable was given to a trade creditor who accepted it at a discount, and that the transaction was entered thus:

Creditor (by name)	$990.00	
Sales Discount	10.00	
Notes Receivable		$1,000.00
To record settlement with creditor by turning over to him the note of ———, for $1,000.00 at a discount of 1%.		

There are two mistakes in this entry: charging sales discount with what was properly interest expense, and crediting notes receivable instead of notes receivable discounted. The accounts are made right by two entries:

Notes Receivable	$1,000.00	
Creditor (by name)		$ 990.00
Sales Discount		10.00
To reverse entry of ——— made in error.		
Creditor (by name)	990.00	
Interest Expense	10.00	
Notes Receivable Discounted		1,000.00
To record correctly the settlement with Creditor by turning over to him the note of ——— for $1,000.00 at a discount of 1%.		

Of course the same result could have been obtained by an entirely different method, by merely transferring the misplaced items to the proper accounts:

Interest Expense	$ 10.00	
Notes Receivable	1,000.00	
Sales Discount		$ 10.00
Notes Receivable Discounted		1,000.00
To correct error in entry of ——— recording the settlement with Creditor, by turning over to him the note of ———, Interest Expense having been charged in error to Sales Discount, and the face of the note having been credited in error to Notes Receivable.		

Such an entry is open to criticism because so much explanation may be necessary in order to make it plain. Moreover, the typical bookkeeper will usually find it simpler to reverse the mistaken entry and re-record it *de novo*, than to frame a mere correction. The simpler the task, the more likely the bookkeeper's work is to be accurate. The conclusion is, therefore, that a mistake in making a complicated entry which does not affect surplus, or which is discovered before the books have been closed, is best rectified by a reversal of the erroneous entry, followed by a correct recording of the whole transaction.

Concealed Distortions of Surplus.—In considering errors which do not affect surplus, the accountant must be ever on the alert lest what appears to have no influence on profits may in truth have distorted indirectly either expenses or income. Only careful analysis will reveal such distortions. To illustrate such a situation, suppose that some new counters have been installed at a cost of $5,000.00, and the purchase price was debited to Building, instead of to Furniture and Fixtures. Three years later the mistake is discovered. At first thought the following entry may seem sufficient:

Furniture and Fixtures	$5,000.00	
Building		$5,000.00
To correct erroneous charging of counters purchased ———, on Voucher No. ———, to Building account.		

This entry is correct, but it is not sufficient in case the rates of depreciation differ on building and on furniture and fixtures. In the case in point the building was depreciated at the rate of 3 per cent per annum and the furniture and fixtures at 10 per cent—in three years the discrepancy would amount to $1,050.00. Therefore, to correct the books completely it would be necessary to eradicate the effects of the mistake by adjusting both depreciation reserves and Surplus.

Reserve for Depreciation of Building	$ 450.00	
Surplus	1,050.00	
Reserve for Depreciation of Furniture and Fixtures		$1,500.00
To correct books for 3 years' depreciation on counters erroneously credited to Reserve for Depreciation of Building at 3% per annum on a valuation of $5,000.00, instead of to Reserve for Depreciation of Furniture and Fixtures at 10% per annum.		

This illustration makes clear the point that no error should be disposed of finally until the possibilities of its effect on profit and loss or surplus have been investigated. The relation of errors to the income tax will be considered later.

Errors in Nominal Accounts Disclosed Prior to Closing.—Whenever a mistake affecting the profit and loss account is discovered between the time of its perpetration and the closing of the books, it should be corrected forthwith, either by reversing the erroneous entry and reentering the transaction, or by an adjustment between the accounts concerned. If wages paid workmen while repairing machinery have been debited to the Machinery account, the rectifying entry would be:

Repairs to Machinery	xxxx	
Machinery		xxxx
To charge Repairs to Machinery with a revenue expenditure wrongly debited to the asset account.		

The alternative entries would appear as:

Payroll	xxxx	
Machinery		xxxx
To reverse, etc.		
Repairs to Machinery	xxxx	
Payroll		xxxx
To record repairs to machinery originally entered by mistake as a debit to Machinery, see Voucher #———.		

The method which uses the reversing entry should usually be avoided if the transaction has involved cash or if the correction is simple.

Some bookkeepers rule through the mistaken entry with red ink, and then make a correct entry and postings *de novo*. This practice is generally frowned upon, because:

1. It may entail changing column totals and the postings thereof if the books of original entry have been footed before the discovery of the error.
2. The reason for the cancellation may not appear clearly, the correct entry being in another part of the books.
3. The explanation of the change may be obscure.

An even worse practice is the erasure of the incorrect phrases or items and the superimposition of the right data. This is bad because of its lack of neatness, the possibility of blurring the figures and of forgetting to alter the postings, because of the furtive implication in an attempt to conceal the mistake, and because the courts refuse to accept as evidence records showing erasures.

Surplus-distorting Errors Revealed in the Period Following their Perpetration.—Mistakes discovered in the period following that in which the errors were made should be corrected if they have affected the proprietorship accounts. The charging of an item to the wrong expense account or the crediting of an amount to the wrong income account does not affect net profit. The income statement for the period will be inaccurate in detail, but the amount carried to proprietorship will be correct. It is, therefore, only those nominal account errors actually affecting the surplus or capital accounts that need to be rectified.

Most such surplus-distorting errors affect both a nominal account and either an asset or liability account. If these latter accounts still stand on the books they should be adjusted to the proper amount, the contra entry being to surplus or some other vested proprietorship account. Suppose, as an example, that a lawyer's fee of $150.00 that should have been debited to General Expense has been capitalized as

Organization Expense. It is evident that Organization Expense should be reduced by $150.00 in order that the asset may appear at its true value. Since the total assets are thus reduced, surplus should be diminished likewise, having been credited with $150.00 too much when the books were closed. The proper entry will therefore be:

Surplus	$150.00	
Organization Expense		$150.00
To correct an error in charging to capital an item of expense, lawyers' fees, Voucher #——.		

Likewise, if the closing merchandise inventory has been undervalued but still stands on the books, the correction will be:

Merchandise Inventory	xxxx	
Surplus		xxxx
To correct error in merchandise inventory of ——.		

It is not worth while in such cases to go back and reopen the nominal accounts for the past period and then reclose the books, for this would entail great confusion and would be worth nothing. The action of real value would merely make the books true as of the time of the discovery of the mistake. A new operating statement for the past period incorporating the amended data can be prepared if it is needed.

If the asset or liability affected by the error in a nominal account which has been closed no longer appears on the books, the problem assumes a slightly different form. This is likely to occur if an adjustment has been made for the wrong amount, and the adjusting entry has then been reversed in reopening the books for the subsequent period. In such an event the adjustment would involve surplus or proprietorship and the nominal account. This statement will be clarified by an example. Suppose that in adjusting, the following entry was made:

Salesmen's Salaries	$1,500.00	
Accrued Salaries Payable		$1,500.00

This entry was correct in theory, but the amount should have been $1,050.00. But the books were closed before the discrepancy was discovered, and later, in reopening, the reversing entry was made:

Accrued Salaries Payable	$1,500.00	
Salesmen's Salaries		$1,500.00

It is clear that the surplus is $450.00 too small. Likewise, the account Salesmen's Salaries for the current period will be too small by $450.00, having been opened with a credit of $1,500.00 instead of the correct amount, $1,050.00. Therefore the required entry will be:

Salesmen's Salaries		$450.00	
Surplus			$450.00
To correct error in adjustment in closing books ——. The accrued salesmen's salaries was estimated at	$1,500.00		
but should have been	1,050.00		
an error of	$ 450.00		

Thus the corrections to the surplus necessarily involve the nominal accounts in cases where the asset and liability accounts affected by the error have been taken from the books. If, however, a valuation account was distorted, the adjustment is to it and to Surplus.

All corrections involving surplus or the nominal accounts should be made in accordance with the income tax law and regulations. For example, if an honest mistake has been made in estimating depreciation, the Treasury Department rules that, when the error in rate has been disclosed, the depreciable value as shown by the books must be written off at a rate based on an estimate of the remaining life. This precludes adjustments back through surplus for past errors in estimating depreciation. The regulations further provide: "Each year's return, so far as practicable, both as to gross income and deductions therefrom, should be complete in itself, and taxpayers are expected to make every reasonable effort to ascertain the facts necessary to make a correct return. . . . A taxpayer has the right to deduct all authorized allowances, and it follows that if he does not within any year deduct certain of his expenses, losses, interest, taxes, or other charges, he cannot deduct them from the income of the next or any succeeding year. It is recognized, however, that particularly in a going business of any magnitude there are certain overlapping items both of income and deduction, and so long as these overlapping items do not materially distort the income, they may be included in the year in which the taxpayer, pursuant to a consistent policy, takes them into his accounts. . . . If subsequent to its occurrence, however, a taxpayer first ascertains the amount of a loss sustained during a prior taxable year which has not been deducted from gross income, he may render an amended return for such preceding taxable year including such amount of loss in the deductions from gross income and may file a claim for refund of the excess tax paid by reason of the failure to deduct such loss in the original return. A loss from theft or embezzlement occurring in one year and discovered in another is ordinarily deductible for the year in which sustained." Unless the statute of limitations has run, a taxpayer has the right to file an amended return and to have his tax computed on the basis of the facts, whether originally reported or not. On the other hand, a taxpayer who has failed to report all his deductions one year may not in the next year omit enough income to balance the previously unclaimed loss. The tax return should be accurate for each year treated as a unit. The Bureau of Internal Revenue reserves the right to assess penalties on a taxpayer whose amended return exhibits increased liability for taxes.

Surplus-distorting Errors Found after Period Subsequent to their Perpetration.—When more than one closing of the books has intervened between the occurrence of an error and its detection, mistakes that affected the nominal accounts must be divided in two classes. Some of these errors are corrected automatically by the time the books have been closed twice. The miscalculation of the salesmen's salaries cited in a previous illustration minimized the profit for that year and therefore, when revealed, necessitated an adjustment with Surplus. But if this miscalculation had remained unknown during the entire subsequent period, the salesmen's salaries for that second period would have appeared smaller than they actually were by the amount that they had first been overstated. Thus there would have been two mistakes in the profit, equal in amount but opposite in effect. Surplus, as far as these errors affected it, would have been corrected automatically. Whenever an error is automatically counterbalanced, a correction on the books is unnecessary unless an owner's rights have been adversely influenced by the mistake. This might happen, for example, if partnership profits are distributed on the basis of respective capital investments, and the amounts of earnings left in the business are affected by the mistake. These mistakes which are later counterbalanced usually arise in connection with such adjustments as accruals, deferments, and inventories.

If the error is not automatically counterbalanced by later entries affecting Surplus, it may be corrected by an entry adjusting Proprietorship and the asset or liability account involved.

The Work Sheet as an Aid in Correcting Books.—When a situation arises in which it becomes necessary to correct the books, because many errors have been revealed, a work sheet similar to that in Figure 35 may prove helpful. This work sheet is based upon the following data:

The books of the Blank Corporation, which has been organized four years, have shown profits as follows: $8,000.00 in 1928, $9,000.00 in 1929, $4,000.00 in 1930, and $6,000.00 in 1931. At the close of each of these years a 5 per cent dividend has been paid on the $100,000.00 of common stock outstanding, leaving a surplus of $7,000.00 as of December 31, 1931. A careful check of the operations for the four years reveals the following: The Merchandise Inventory was overvalued $1,000.00 December 31, 1928, $2,000.00 December 31, 1929,

THE BLANK CORPORATION—WORK SHEET FOR CORRECTION OF ERRORS IN BOOKS—January 28, 1932

		Profit & Loss 1928		Profit & Loss 1929		Profit & Loss 1930		Profit & Loss 1931		
		Dr	Cr	Dr	Cr	Dr	Cr	Dr	Cr	
1	Balance per Books December 31		8,000.00		9,000.00		4,000.00		6,000.00	
	Adjustments for Errors Dec. 31, 1928									
2	Inventory Overvalued	1,000.00			1,000.00					
3	Depreciation Underestimated	1,000.00								Credit Reserve for Depreciation
4	Deferred Charges to Expense Overvalued	500.00			500.00					
5	Accrued Wages Payable Overestimated		200.00	200.00						
	Adjustments for Errors Dec. 31, 1929									
6	Inventory Overvalued			2,000.00			2,000.00			
7	Depreciation Underestimated			600.00						Credit Reserve for Depreciation
8	Overstatement of Accrued Wages Payable				200.00	200.00				
9	Charged to Fixtures instead of Repairs			500.00						Credit Fixtures
	Adjustments for Errors Dec. 31, 1930									
10	Inventory Undervalued						1,500.00	1,500.00		
11	Depreciation Overestimated						200.00			Debit Reserve for Depreciation
12	Underestimate of Accrued Taxes					500.00			500.00	
13	Charged to Repairs instead of Building						1,500.00			Debit Building
	Adjustment for Errors Dec. 31, 1931									
14	Inventory Undervalued								500.00	Debit Inventory
15	Depreciation Underestimated							300.00		Credit Reserve for Depreciation
16	Overestimate of Accrued Taxes								200.00	Debit Accrued Taxes
17	Accrued Interest Receivable Overestimated							100.00		Credit Accrued Interest Receivable
18	Deferred Liabilities Overestimated								200.00	Debit Deferred Liabilities
19	Payment for New Truck Charged to Reserve for Depreciation									Debit Delivery Equipment Credit Reserve for Depreciation $1500.00
20	Totals	2,500.00	8,200.00	3,300.00	10,700.00	700.00	9,200.00	1,900.00	7,400.00	
21	Net Profit for Year	5,700.00		7,400.00		8,500.00		5,500.00		
22	Balancing Totals	8,200.00	8,200.00	10,700.00	10,700.00	9,200.00	9,200.00	7,400.00	7,400.00	

FIGURE 35

and undervalued $1,500.00 December 31, 1930, and $500.00 December 31, 1931. Depreciation was underestimated $1,000.00 for the year 1928, $600.00 for the year 1929, and $300.00 for the year 1931, and overestimated $200.00 for the year 1930. In making the adjustments before closing December 31, 1928, deferred charges to expense were overvalued $500.00 and accrued wages payable were overestimated $200.00. In 1929, $500.00 was charged to Fixtures which should have been debited to Repairs; in the adjustments of December 31 accrued wages payable were overestimated $200.00. In 1930, $1,500.00 expended on improvements to the building was mistakenly debited to Repairs; and in closing the books December 31, accrued taxes were underestimated $500.00, an amount which was included in the taxes paid in 1931. During 1931, $1,500.00, the purchase price of an additional truck, was charged in error to Reserve for Depreciation, and in adjusting the books December 31 accrued taxes were overestimated $200.00, deferred liabilities were overestimated $200.00, and accrued interest receivable was overvalued $100.00.

The work sheet as developed in Figure 35 is laid out with a broad column for particulars, a debit and a credit money column for the adjustment of each year's profits, and a broad column at the extreme right for memoranda from which to construct the correcting entries in the books. On the credit side of the line numbered 1 is entered the profit for each year as shown by the books. Lines 2 and 6 contain the entries for inventory overvaluations; the profits of 1928 were swollen $1,000.00 and those of 1929 were diminished $1,000.00 by the mistake in inventory December 31, 1928, but there was no net effect on surplus after December 31, 1929. Therefore no adjusting entry is required on the books. Similarly, the 1929 profits were apparently too great and the 1930 profits apparently too small by $2,000.00, the error in inventory December 31, 1929. Lines 10 and 14 show the adjustments for undervaluations of the inventories. In line 10 the situation is handled in a manner paralleling lines 2 and 6 because there is no net effect on surplus, but line 14 is different. Since there has not yet been time for the automatic correction of the error made December 31, 1931, a book entry will be necessary to credit Surplus and debit Inventory. Lines 3, 7, and 15 contain similar adjustments to take care of underestimates of depreciation. In each case the correction requires an increase in the Reserve for Depreciation and a decrease of Surplus. Line 11 is analogous, except that the correction is a debit to the Reserve for Depreciation and a credit to Surplus, since depreciation was overestimated and the profits of the year consequently minimized. The entries on lines 4, 5, 8, and 12 are analogous to that on line 2, involving items which affect the profits of one year and are automatically counterbalanced the next, thus needing no adjustment if not discovered until 1932. On the other hand, the entries in lines 16, 17, and 18 resemble line 14. Although these items will be offset December 31, 1932, they have not been so counterbalanced January 28, 1932, when the results of the audit are being tabulated. Each of these items, therefore, requires a debit or a credit to an asset or a liability account and a balancing entry to Surplus. In lines 9 and 13 appear items arising out of confusion between capital and revenue expenditures. Each requires an adjustment of the Surplus and of the appropriate asset account, there being no automatic counterbalancing. Line 19 exhibits an item which does not affect Surplus at all, the wrong asset account (a valuation account) having been charged; therefore the entire correction is indicated in the extreme right-hand column. Lines 20 and 21 sum up the effects of these adjustments on the profits of the four years, the corrected net profit being shown as a balancing figure in line 21.

On the basis of this work sheet the correcting journal entries can be framed. They are:

(a)	Surplus		$1,700.00	
	Reserve for Depreciation			$1,700.00
	To correct Reserve for Depreciation for mistakes as follows:			
	Underestimates, 1928	$1,000.00		
	1929	600.00		
	1931	300.00		
		$1,900.00		
	Overestimate, 1930	200.00		
		$1,700.00		
(b)	Surplus		500.00	
	Fixtures			500.00
	To correct error made ———, 1929, charging to Fixtures an item which should have been debited to Repairs.			
(c)	Building		1,500.00	
	Surplus			1,500.00
	To correct error made ———, 1930, charging to Repairs an improvement in the Building.			
(d)	Merchandise Inventory		500.00	
	Accrued Taxes		200.00	
	Deferred Liabilities		200.00	
	Accrued Interest Receivable			100.00
	Surplus			800.00
	To correct errors in adjustments made prior to closing books December 31, 1931, Merchandise Inventory having been undervalued, and Accrued Taxes, Deferred Liabilities, and Accrued Interest Receivable having been overestimated.			

(e) Delivery Equipment	$1,500.00	
Reserve for Depreciation		$1,500.00
To correct error made ———, 1931, in charging to the Reserve for Depreciation the invoice price of an additional truck.		

These entries will square the books with the facts as revealed by the audit, and will enable the bookkeeper to prepare correct statements at the close of 1932, provided he makes no further mistakes.

A corrected statement of profits and surplus can be prepared also on the basis of this work sheet, as in Figure 36.

The Correction of Statements.—When the necessary corrections have been worked out, statements may be adjusted by the use of a work sheet similar to that in Figure 37, the same form being available for an operating statement. The original statement is copied on the work sheet in the form of a well-arranged post closing trial balance. The second pair of columns are used for debit and credit adjustments, and the third for the items of the balance sheet as adjusted. The items in the adjustment columns are keyed to correspond with the journal entries drafted in the preceding section. The balance sheet can be made in good form from the items in the adjusted columns. In case an operating statement has to be adjusted, the items composing it are placed in the first two columns, the net profit appearing as a debit, or the net loss as a credit, to balance the totals. By the use of such work sheets, statements for any date or period can be corrected without altering the books.

When the errors cover a period of years and it is desired to correct both balance sheets and statements of profit and loss, it may be useful to prepare a schedule of the adjustments to be made similar to Figure 38. If such a schedule is made during the audit which discloses the errors, it will save time in rectifying the statements. This figure does not show all the errors tabulated in Figure 35, but illustrates the methods available for listing them and for indicating their effects.

Summary.—In businesses having efficient bookkeepers or good systems of internal check, errors are very rare. Such mistakes as do occur are usually located promptly and corrected by the use of debit and credit tickets or by simple journal entries.

In determining how to correct an error, the first step is to determine whether it has affected net worth as it appears on the books at the time the discovery is made. If an error involving a nominal account has been automatically counterbalanced by its own opposite effect in a succeeding period, no correction is necessary. If surplus or net worth is distorted, the mistake should be rectified by entries affecting proprietorship and an asset, liability, or nominal account.

THE BLANK COMPANY

ADJUSTED STATEMENT OF SURPLUS

December 31, 1928, to December 31, 1931

Balance December 31, 1928	.....
Add Profits of 1928	$5,700.00
	$5,700.00
Deduct Dividend declared December 31, 1928	5,000.00
Balance December 31, 1928, as adjusted	$ 700.00
Add Profits of 1929	7,400.00
	$8,100.00
Deduct Dividend declared December 31, 1929	5,000.00
Balance December 31, 1929, as adjusted	$ 3,100.00
Add Profits of 1930	8,500.00
	$11,600.00
Deduct Dividend declared December 31, 1930	5,000.00
Balance December 31, 1930, as adjusted	$ 6,600.00
Add Profits of 1931	5,500.00
	$12,100.00
Deduct Dividend declared December 31, 1931	5,000.00
Balance after Dividend, December 31, 1931	$ 7,100.00

RECONCILIATION OF SURPLUS

Surplus per books December 31, 1931				$7,000.00
Add:				
Overcharge for Depreciation	1930		$ 200.00	
Improvement to Building	1930		1,500.00	
Undervaluation of Inventory	1931		500.00	
Overestimate of Taxes	1931		200.00	
Overestimate of Deferred Liabilities	1931		200.00	2,600.00
				$9,600.00
Deduct:				
Underestimates of Depreciation				
	1928	$1,000.00		
	1929	600.00		
	1931	300.00	$ 1,900.00	
Charge to Repairs,	1930		500.00	
Overestimate of Interest Earned	1931		100.00	2,500.00
Surplus as Adjusted				$7,100.00

FIGURE 36

THE BLANK CORPORATION

WORK SHEET FOR CORRECTING BALANCE SHEET OF

December 31, 1931

	Balance Sheet, Dec. 31, 1931		Adjustments		Adjusted Balance Sheet, Dec. 31, 1931	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Cash	10,000.00				10,000.00	
Notes Receivable	30,000.00				30,000.00	
Accounts Receivable	25,000.00				25,000.00	
Accrued Interest Receivable	250.00			(d) 100.00	150.00	
Merchandise Inventory	40,000.00		(d) 500.00		40,500.00	
Building	35,000.00		(c) 1,500.00		36,500.00	
Delivery Equipment	5,750.00		(e) 1,500.00		7,250.00	
Fixtures	16,000.00			(b) 500.00	15,500.00	
Reserve for Depreciation		12,000.00		(a) 1,700.00 (e) 1,500.00		15,200.00
Accounts Payable		20,000.00				20,000.00
Notes Payable		21,000.00				21,000.00
Accrued Interest Payable		600.00				600.00
Accrued Taxes Payable		800.00	(d) 200.00			600.00
Deferred Liabilities		600.00	(d) 200.00			400.00
Capital Stock		100,000.00				100,000.00
Surplus		7,000.00	(a) 1,700.00 (b) 500.00	(c) 1,500.00 (d) 800.00		7,100.00
	162,000.00	162,000.00	6,100.00	6,100.00	164,900.00	164,900.00

FIGURE 37

SCHEDULE OF ERRORS AND STATEMENTS TO BE CORRECTED

	[a] Profit and Loss of				Balance Sheet at Close of			
Error	1928	1929	1930	1931	1928	1929	1930	1931
December 31, 1928								
Inventory overvalued $1,000.00	−	+			✓			
Depreciation underestimated $1,000.00	−				✓	✓	✓	✓
Deferred charges to expense overvalued $500.00	−	+			✓			
Accrued wages payable overestimated $200.00	+	−			✓			
December 31, 1929								
Inventory overvalued $2,000.00		−	+			✓		
Depreciation underestimated $600.00		−				✓	✓	✓
Accrued wages payable overestimated $200.00		+	−			✓		
$500.00 charged to fixtures instead of repairs		−				✓	✓	✓

FIGURE 38

[a] Actual profits less than book profits −; actual profits greater than book profits +.

Errors involving only asset or liability accounts should be corrected as soon as they are discovered since they usually affect the accuracy of statements rendered to customers or amounts payable to creditors.

Corrections should be made in the simplest way consistent with good bookkeeping, but complicated mistakes are sometimes most easily rectified by reversing the original wrong entry and making the right entry *de novo*. Corrections should be in accordance with the income tax law and regulations.

The wise handling of errors is more a matter of analysis and the application of common sense than of following elaborate rules.

On rare occasions a work sheet may be helpful in designing the correcting entries or in adjusting statements, such as when an auditor has examined books which have long been carelessly kept, when adjustments are necessitated by a refinancing or by a change in ownership, or when disputes as to status have to be settled.

QUESTIONS

1. Give examples of some errors which seem not to affect proprietorship at all but which may in time actually distort the surplus or the proprietorship accounts indirectly.
2. Show why it is better to reverse a complicated entry in which a mistake has been made and to start over than to attempt a correction of the mistake. Give several illustrations of such complicated entries.
3. What is the relation of the time of discovery of an error to the procedure for rectifying it?
4. Point out the differences in corrections on partnership books from those on corporation books.
5. How would you correct such a mistake as the crediting of an income account with an item that should have been credited directly to surplus? Illustrate.
6. Suppose a transaction has been recorded properly in the book of original entry, but has been posted to a wrong account. How would you make the correction?
7. Suppose an item appears correctly in the journal but has been posted to the right account in an erroneous amount. How would you correct this?
8. Make a list of all the types of errors you can think of which will be automatically counterbalanced in the succeeding period.
9. Are there any types of errors which are not counterbalanced in the succeeding period, but which in the long run are rectified by later entries, either all at once or a little at a time?
10. Why should the income tax regulations make it difficult for a taxpayer to reopen his books to record new losses subsequent to the filing of his return for the period? What do you think of the provision of the

regulations for the adjustment of depreciation which has been allowed at an incorrect rate?

REFERENCES FOR SUPPLEMENTARY READING

Finney, H. A., *Principles of Accounting,* Prentice-Hall, Inc., New York, vol. i, chap. xv.

Regulations 74, Income Tax, United States Treasury Department, Washington, D. C., *passim.*

CHAPTER IX

BUDGETING

Need for the Budget.—The construction of accurate statements at the end of the accounting period is of inestimable importance to a business, and this is the main reason for devoting the first eight chapters of this book to the form and content of the balance sheet and other regular statements. To a limited extent these records of past performance may be used as guides for present action, but in planning ahead something more is needed. Once it was possible to conduct a business without much attention to the future, but in these days of huge capitals, high costs, scientific management, and business cycles it is becoming more and more difficult to "go it blind" and arrive at a profit. The reason is obvious: one who buys goods to sell is bound to lose if he purchases more than his customers will take at remunerative prices; but if he fails to provide enough merchandise to satisfy his market, he forgoes potential profit and stands to alienate a part of his patronage. Likewise, the firm that manufactures for stock must attempt to produce as nearly as possible the volume of output that it can sell profitably. Even a concern that fabricates only on specific order is under the necessity of forecasting the probable total production to the end that it may distribute the manufacturing and administrative expenses. It is therefore evident that continuous success in any trading business depends on planning. When this is done systematically, formally, and with considerable completeness for the enterprise as a whole, it is called "budgeting." A budget is a careful detailed estimate of the volume of business that will be done by an organization during a definite period, and of the expenditures which will be necessary to procure and transact that business. This estimate cannot be confined to the mere volume of sales, purchases and production; it will include planning the equipment, working out the necessary manpower and distributing it among the departments, providing the required funds, and comparing the actual with the estimated outlays and results.

Those who introduce budgeting in their businesses have many objects in mind. Perhaps their most important purpose is the furnishing of criteria by which the several department heads may judge their own efficiency, and by which the general manager may rate his subordinates. Another aim is the fixing of responsibility, since each executive has a specific task for which he is accountable, a definite standard to which he should conform. A third object is the coordination of all the efforts of the organization. Each employee knows that he has a part in a well worked-out unified plan, a part that is essential to the general success. A fourth reason is the regularization of employment. A moderate-sized force kept at work the year around is far more efficient than a group of widely varying numbers, not only because the individual members learn their work thoroughly if they are employed regularly, but because the morale of the force is improved by the confidence that layoffs and shutdowns are improbable. Closely connected with this is the fifth reason—a fact which is being increasingly realized—that production is more economical in a small plant running at capacity than in a great one which is busy only part of the time. Other reasons have been advanced for the adoption of the business budget, but all are centered in securing a higher degree of efficiency in the conduct of business. It is safe to say that few, if any, firms are able to realize fully all the objectives which have been enumerated. Most of the better-developed budgeting systems have grown from small beginnings, often in the financing department, by processes of experimentation and adaptation to the immediate needs to be served and to the peculiar problems of the organization. This chapter will set forth some of the cardinal principles of budgeting without straying into a maze of detailed description of forms and particular procedures.

The Budget Period.—The further ahead one attempts to look, the more obscure the future becomes. Since the budget must be absolutely practical, it can be concerned only with that future which lies within the range of reasonable foresight. It is perfectly feasible for the great public utility companies, such as the main subsidiaries of the American Telephone and Telegraph Company, to plan their major installations fifteen or twenty years ahead and their mains or trunks five years in advance. On the other hand, some of the oil companies budget month by month, the plans for one month being formulated about the twentieth of the preceding month. Many department stores divide the calendar year into two seasons, spring and fall, and therefore draw up the budgets twice a year. For most businesses the year forms a natural budget period because it includes the whole cycle of the variations in demand and in production problems as they may be affected by weather. In most businesses, too, it is necessary to make amendments to the budget rather frequently as the year progresses. This alteration is usually undertaken monthly, in order that the most recent facts may be incorporated in the plans. Since the calendar months are of unequal length, many firms have divided the year into thirteen accounting months, each comprising four weeks, thus making the monthly comparisons and checks more accurate. One of the important facts in choosing the budget period is what is known as "the natural business year." This is three hundred and sixty-five days long, but its beginning is set at some logical time when the period's operations may be viewed as starting an annual cycle. For example, the natural year for some automobile manufacturers might begin in October when they cease producing the current models and commence adapting their machinery to the production of the new styles. It is evident, therefore, that the most advantageous period for the budget varies considerably with circumstances, and that the thirteen-month "natural year" is rapidly gaining in favor.

Forecast of Sales.—In order to plan either the purchases of a merchandising organization or the production of a factory, it is necessary first to estimate the volume of sales for the budget period. Even though a business has a considerable burden of fixed charges, most of the selling expenses, most of the production costs, and even most of the outlays for administration vary in the same direction as sales. While the changes of these expenses are not all directly proportional to the fluctuations of sales, their variations are dependent on the volume of business. Therefore the forecast of sales is the heart of the budget.

There are many methods of estimating sales, most of which have been developed to meet particular situations. Some organizations depend almost entirely upon their own internal statistics. If, for example, the volume of business has increased an average of five per cent per annum for the past several years, it may be assumed that the increase for the coming year will be five per cent over the present. The measure of volume of business may be in dollars or units of output. Since prices are in a constant state of fluctuation, or at least of variation, the sales forecast should consider both dollars and units. In planning for the fall trade, for instance, a men's clothing store must estimate as well as possible the number of overcoats, top coats, and suits that can be sold in each style and price line handled. It is not safe to rely upon a continuous increase of volume of business for several reasons. First, there is the cycle of general business, the physical volume of sales being fully ten per cent smaller in the depressions than in the preceding periods of inflation, and the money volume shrinking in considerably greater proportion. Therefore it is necessary, in forecasting sales, to consider the prospects of business in general, and of one's own line in particular, for the cycle affects diverse industries to different extents. Second, there must be considered the change in general demand, taking customers away from some lines to others, as the automobile laid low the bicycle factories and the horse marts, as hair bobbing built up barber shops at the expense of hairpin manufacturers, and as short skirts promoted silk stockings at the cost of cloth makers. A third consideration involves changes within an industry, as the department and chain stores have been taking an ever greater share of the merchandising of the commodities they handle, and as the southward trend of textile manufacturing has injured the New England mills. For these reasons and for other similar ones, the forecasting of sales involves the accumulation and interpretation of a mass of external facts in addition to a statistical study of the internal records.

Therefore, a better approach to the sales budget is through a study of the prospects of the particular trade within the environment of general business as a whole. Statistics are gathered for many years past and an effort is made to discover the most accurate index of future conditions. This index may be found to be the unfilled orders of the United States Steel Corporation, freight car loadings, chain store sales, bank clearings, average prices of a group of stocks, wholesale prices, or one of the indices of the professional forecasters. The index should precede movements in the trade regularly and at a sufficient interval to allow planning ahead. There are two common plans for applying these indices to business. In the first method, the extent of variation of the index is taken to indicate the extent of probable variation in the volume of business in the trade; for example, if the index varies five per cent, trade volume may be found to vary two per cent in the same or opposite direction. However, too much reliance should not be placed on these ratios. If the index suggests a certain fluctuation in the trade, sales may be planned to increase or decrease in a related proportion. The second method is to deduce from the index the probable total volume of sales of all the firms in the industry. The person making the budget then decides what part of the estimated total sales should be sought by his organization, and adopts this as his firm's basis in planning. If due attention is paid to both prices and quantities, either of these methods is far superior to basing the estimate of sales upon internal statistics alone.

A third line of attack known as market analysis, has been used with great success by some organizations. An attempt is made to discover just what classes of persons or organizations have any use for the product, to determine the number and geographical location of these potential customers, and to calculate how many of them do not at present possess the article. With this estimate in hand, the next step is to decide what proportion of them should be reached during the next budget period, thus setting the sales goal. Such an estimate, based mostly upon income tax returns, has been used by an automobile manufacturer in establishing the quotas for each selling area. A great

calculating machine company uses a point system, classifying banks according to deposits and other concerns according to their capital ratings. Points are computed for each sales territory on the basis of this classification, the non-customer businesses are estimated, and the reasonable sales expectation budgeted. Each $25.00 worth of machines sold is counted one point. Each agency is expected to sell annually to former customers one point for every five points of previous sales still in use. The rest of the budgeted sales are apportioned to the agencies on the basis of the point values of the unsold potential customers in their several territories. Many other criteria are used in analyzing markets. The method may be quite successful if the type of users can be accurately defined and if means of discovering the number and identity of these prospective customers are available.

There are several other important considerations in estimating sales for the budget. Almost any merchantable article can be sold in large quantities provided the price is low enough and sufficient effort is put into the selling campaign. But this implies that business expansion may be achieved at a loss. Therefore the sales budget should be made only after careful consideration of the profitableness of the business planned. This consideration should be given to each article handled. Of course it may be necessary to manufacture or stock non-profitable lines either as "leaders" or to accommodate customers; but in the absence of the necessity for such a sacrifice, no goods should be handled unless they are profit makers. What is known as the "simplification" movement in industry is founded on the discovery by many manufacturers that most of their profits come from certain standard lines and that they are selling a large proportion of their varieties at a loss. Thus, if the variety of goods is considerable, the sales budget must be based on the attempt to select for pushing those lines in which the gain is greatest. On the other hand, where many commodities must be carried, as in department stores, great care is necessary to plan in detail the sales quota of each department and section.

A second complication arises in the need of planning sales by months. If business during the first months lags behind the expectation, the budget can be adjusted to the smaller volume; but if sales exceed what are planned and if there is no reason to anticipate later diminution, the budget may be expanded within reasonable limits. The budget must be adaptable to current developments, for otherwise it is of little help. The specious suggestion that a budget which looks forward to alteration is no budget at all is fully answered by the consideration that a well-developed adaptable plan is far better than no plan at all or than a rigid program. If deliveries are to be from stock, the budget must provide for purchases or production at such a rate that inventories will always be large enough to satisfy the demands of customers.

A third very important factor to be considered is the "saturation point." When a new business is developed, like the automobile or radio industry, it seems for a while that the public demand is insatiable. But the time is reached, sooner or later, when everyone who can afford it has a car or a radio. Then automobile manufacturers may try to promote the "two-car family idea," or the impression that "milady's car should match her ensemble," and the producers of radios may adapt them for installation in automobiles. Such measures of desperation are evidence that the limit of rapid expansion has been reached. When the new units sold are restricted to those necessary for replacements and to those needed for additional consumers resulting from the increase of population, the market is saturated. In budgeting sales, therefore, the state of the market must be watched from the point of view not only of the business cycle but also of relative saturation.

Budget of Selling Expense.—Selling expenses are either comparatively fixed and so beyond the control of the budget, or widely variable and subject to complete regulation. The fixed selling expenses are relatively few, office rent, depreciation of office equipment, and payments for such services as light and heat being the most common. Even these items can be changed by a judicious move if the sales office occupies rented quarters; but if the building is owned, or if a merchandising business has been well established in a location, a change is out of the question. If some salesmen are on salaries, these salaries are practically determined in advance. Of course, salary decreases are sometimes made and executives are sometimes discharged in order to economize, but such procedure is questionable from the point of view of both morals and morale.

In contrast to these relatively fixed expenditures, the great bulk of the selling expense is subject to control. In a department store the sales budget of each department will determine the number of sales people to be employed. The average sales check in each department and the number of sales per employee per week can be gauged accurately from experience. For example, if the planned sales of a department for some month are $60,000.00, if the average sales check is $5.00, and if the clerks average 200 transactions per week, the sales force during this month will have to number fifteen. This may include ten regulars and ten who are on a half-time basis during the busiest hours, or some other combination of full-time and part-time employees. As the planned sales of the departments vary from month to month, so will the number of sales persons. Similarly, a manufacturer will know from experience how many customers a traveling salesman can see each day on each route, and will plan his force accordingly. If he wishes to reach the smaller places or the smaller merchants in the large centers, he will have to employ more salesmen than if only the principal merchants are to be solicited. When the size of the sales force has been decided, their compensation can be considered. Whether this takes the form of straight salaries, of commissions, or of combinations of salaries, commissions and bonuses is a matter that must be settled, if not as a permanent policy, at least as a step in preparing the budget. Thus, on the basis of the size and method of payment of the sales force, that part of the budget dealing with sales salaries can be drafted. If salesmen are to travel, an item should be included for these expenses, and this can be estimated quite accurately on the basis of the railway or automobile mileage to be covered and the days' living expenses to be provided. Past experience as to such traveling costs must be supplemented by a study of the changes which will follow a proposed re-routing or more intensive visitation of the trade.

Another selling expense which is subject to control is advertising. Sometimes a firm will follow the practice of many stores and devote a certain per cent of the net sales to advertising; for example, 4.5 per cent of net sales may be planned for advertising, of which 2.5 per cent will be spent in the newspapers, 1.2 per cent in direct mail advertising, and 0.8 per cent for the show windows and billboards. However, a manufacturer will have to budget his advertising differently. Perhaps he will plan to use a page a month in each of a selected list of nationally circulated magazines. Since the cost of a page in each periodical can be found in a "rate and data" book, the expense of such a campaign can be foretold quite definitely even before the contracts are made. Of course the salaries of those in the advertising department or the fees of the agencies used are a part of the advertising budget.

Similarly, the other selling expenses necessary to secure the planned volume of business are considered in detail. The budget maker thus should start with his fixed or relatively fixed expenses, and work out the most economical way of achieving the sales goal. To sell cheaply one year at the expense of lost prestige or the alienation of customers would be poor policy. The sales policy should build morale among the selling force and friendliness among the customers. Therefore most manufacturers provide dealer helps, "service" to consumers, funds for making good faulty units, and systematic training for their salesmen. When the sales expense budget has been completed it should show in detail each outlay planned, it should fit into the program for attaining the desired volume of business, and it should be consistent with the increase of goodwill. The author of the budget must be able to defend each item, and this he can do since his budget has been made on the basis of the desired goal and the data from the organization's past experience.

Budgeting Purchases.—In the retail store purchases are directly dependent on the sales budget. Although it is necessary that merchandise be available for sale, it is highly undesirable that goods be held in storage so long as to deteriorate, or that there be too much capital "tied up" in inventories. For these reasons delivery dates should be planned with great care, and purchase orders should be placed long enough in advance to enable the suppliers to manufacture and ship in ample time. Therefore many purchase orders are placed months prior to the date when they will be sold. This means that the store is committed to contracts far ahead of the test of its ability to realize the planned sales. On the other hand, many purchases can be made "from hand to mouth";—most staples can be bought as needed for the forward stock—and it is in these orders for quick delivery that the store preserves the necessary flexibility of its budget to current business developments. Good policy demands always an ample margin of safety between the planned sales and the purchase commitments, but a margin which can be covered by quick delivery orders.

CALCULATION OF OPEN TO BUY

1. Planned inventory, end of month at retail	xxxx	
2. Planned sales for month	xxxx	
3. Estimated marks-down	xxxx	
4. Estimated employees' discounts	xxxx	
5. Estimated shrinkage	xxxx	
6. Total		xxxx
7. Actual inventory, beginning of month, at retail	xxxx	
8. On order for delivery during month, at retail	xxxx	
9. Total deductions		xxxx
10. Open to buy at retail		xxxx
11. Deduct initial mark-on (–% of item 10)		xxxx
12. Open to buy at cost		xxxx

FIGURE 39

The need for keeping purchases within the limits of what can be sold has given rise to various methods of computing the amount which each department is "open to buy." One of the best of these formulæ is exhibited in Figure 39. Items 1 to 5 compose the stock necessary to take care of the expected sales and to show a well rounded inventory at the first of the following month. Items 7 and 8 constitute the stock already provided, either on hand or ordered for delivery during the month. The difference between items 6 and 9 is the value, at retail prices, of the stock needed which has not yet been provided. Item 10 minus the regular margin of profit gives item 12, or what may be purchased at cost prices. If item 9 exceeds item 6, the department is "overbought." In all well organized department stores this open-to-buy report is given to each department head at least once a week, and in some stores daily. No department head may place orders in excess of his open-to-buy without consulting the merchandise manager or the president. Thus this method prevents overpurchasing, as long as sales agree with the quotas planned. If sales for one month exceed the budget, item 7 in the formula is reduced at the beginning of the following month to an amount below what was anticipated and the open to buy is raised correspondingly. But if sales for one month fall behind the schedule, item 7 is larger than expected at the beginning of the next month, and thus the open-to-buy is reduced below the figure originally planned. Thus elasticity to meet business fluctuations is provided, but if there appears to be a real slump in sales ahead, it may be necessary to revise the sales schedules. To guard against these business depressions, department heads are usually instructed that they must restrict advance orders to a certain per cent of each month's sales quota.

In the factory purchases of materials depend on the sales schedule. In a multi-line establishment the production budget is based on the scheduled deliveries by months and commodities, and from this budget are computed the quantities of parts and raw materials that must be placed in process each month. From the quantities of materials needed for fabrication are deducted the beginning inventories and to these differences are added the desired closing inventories, the sums being the buying allowances for the several items of stores. The exact purchasing policy will, of course, vary with many factors. If all signs point to a continually rising market, it may be well to order in advance for the entire budget period; but if the market is declining, materials should be ordered in quantities sufficient merely to insure against the possibility of delay in the fabricating process. This affords an opportunity for the exercise of judgment based on tested indices. Indeed, it may be wise to buy one material far in advance of needs, while purchasing another with the utmost caution. At present there seems to be a growing disinclination to speculate in raw materials, and a strong tendency to buy for current needs only. When bids are to be submitted on contracts, the bidder usually bases his estimate on quotations for materials on which he takes options. An option is the right to buy within a certain period at the quoted price. Manufacturing only to order does away with most of the risks of overstocking materials and of being overloaded with finished goods, but it does not necessarily insure against cancellations.

Budgeting Direct Labor and Manufacturing Expense.—With the product planned, it is possible to calculate the necessary allowance for manufacturing expenses. A knowledge of the capacity of machines and of workers enables the factory manager to determine his labor budget, that is, the type and number of employees necessary. Some concerns have found that a labor budget has enabled them to provide employment the year around for their force, thus abolishing the previous wide fluctuations of the number engaged. If this regularization is not feasible, the budget at least enables the manager to determine in advance when extra help will be needed to handle his peak loads. But it should be remembered that the greatest economy lies in production at a uniform rate at full capacity, whenever possible. The labor plan can readily be converted into dollar wages at the prevailing rates. But there must always be reckoned the possibility of wage increases that may be the result of competition for workers or of union activity. Therefore the preparation of such a budget should involve a careful study of the employment situation, from the stand point of both the probable demand for workers and their mental state.

Some of the factory expenses are practically beyond control, such as the building costs for rent and maintenance, and the depreciation allowances. The salaries of the superintendent and foremen, and possibly the costs of planning and of the stores room are quite inelastic. Other costs are obviously functions of the volume of production, such as those for power, supplies, packing and crating, and, to a limited extent, repairs and upkeep of machinery. The budget for these items will have to be based on both a knowledge of what is necessary for production, and a study of probable price trends; such a budget may become the basis for the distribution of manufacturing expense in the cost system. The figures of previous years are, of course, of great importance in formulating it.

The Administrative Expenses.—Some of the administrative expenses are almost predetermined, such as the salaries of the officers and the cost of space; but a good deal of latitude is possible in making up this budget, particularly with regard to such items as traveling expense, additional clerical force, and supplies. Great attention has to be paid to changes in policy which may necessitate more supervision or which allow greater departmental autonomy. Changes in methods of accounting and control may reduce expenses, or they may increase the outlay in the hope of more than making up for the extra costs by savings and by additional profits. Occasionally it will be found feasible to combine previously independent sections of the office to achieve increased efficiency and economy.

Many miscellaneous features of the budget should be considered under this head, such as the policy regarding group insurance or employee pensions, various forms of welfare work, memberships and activities in trade associations and chambers of commerce, experimental work in developing new products, plant surveys, and the purchase of outside technical services. The gist of the matter is that there should be a definite determination of the business policy for the forthcoming period, and a painstaking effort to decide what will be the cost of administration and of achieving the innovations.

Plant and Equipment.—So far this discussion has ignored the question of plant capacity. Without doubt, the budget should aim to keep the plant operating on as nearly full time as possible. If, however, a branching out into new lines of manufacture or a rearrangement of departments in a store is proposed, expenditures will be required for new equipment or for moving. If there is good reason to believe that the new product will be made permanently, the additional machinery can be charged to capital, and might even be financed by a bond issue. But a rearrangement of departments in a store is of such frequent occurrence and so definitely an experiment that its cost should be considered an expense rather than an investment. The question of such increases or rearrangements in equipment should be faced squarely when the budget is drafted. Such expenditure will usually have to be borne by current funds and, if it is capitalized, there will be enhanced depreciation and taxes in the future not to speak of probable increased upkeep. Therefore the problem of the justification for the outlay should be analyzed cold-bloodedly.

Similarly, a proposed sales budget may involve a considerable expansion of the plant, with the consequent problems of finance, increased fixed charges, and sinking funds. No expansion should be contemplated without forecasting the future. Plant building at high prices in periods of inflation is doubly hazardous because of the deflation of demand soon to be expected and because of the permanently augmented fixed charges which cannot be reduced with the trade deflation. It is far better in many cases to make an extensive survey of the plant to devise new ways of increasing production with the same buildings and perhaps even with the same or slightly changed equipment. If such opportunities for economy can be found, the overhead per unit is so decreased that the plant's competitive position is much improved.

Even where no expansion is proposed, it will ordinarily be necessary to include in the budget a section for the plant for one can seldom look forward to any considerable period without finding replacements and minor items of new equipment necessary. Although these purchases may be charged to capital, the funds must be available. No budget, therefore, can be considered complete until the needs for new equipment have been thoroughly investigated.

The Financial Budget.—In many organizations the budget has originated in the financial department, for the man who has to pay the bills needs to know what and when he is going to have to pay, and also what cash receipts he can count on. According to the nature of the business he can construct a form similar to Figure 40a, filling it in on the basis of the other elements of the budget and a knowledge of sales terms and records of collection.

MONTHLY BUDGET OF CASH

Estimate of Cash Receipts			
Cash on Hand, beginning of period			xxx
Collections on Cash Sales		xxx	
Collections on Accounts Receivable		xxx	
Collections on Notes and Acceptances Receivable		xxx	
Collections of Interest on Notes and Acceptances		xxx	
Collections of Rentals		xxx	
Collections of Interest and Dividends on Investments		xxx	
Collections on Sale of Capital Assets		xxx	
Other Collections		xxx	xxx
Total Estimated Cash Available			xxx
Estimate of Cash Disbursements			
Payments on Open Account		xxx	
Payments on Notes and Acceptances Payable		xxx	
Payments of Interest on Notes and Acceptances		xxx	
Payments of Departmental Expenses			
Department A	xxx		
Department B	xxx		
—			
—			
Department N	xxx	xxx	
Payments for Capital Assets		xxx	
Payments of Interest on Bonds		xxx	
Payments of Dividends		xxx	
Other Payments		xxx	
Total Estimated Payments			xxx
Estimated Cash Balance, end of Period			
Estimated Cash Deficit, end of Period			
Cash to be Provided			

FIGURE 40a

It is necessary to fill out the cash budget form for each month individually, as the analysis of the shorter periods is necessary in order to foretell whether the business will obtain cash from current operations or will have to resort to borrowing. A summary for the entire budget period may be prepared on a schedule like Figure 40b. This form gives the finance officer a view of his task for the entire year. In many respects the cash budget is the most important of all, for it is the test of the feasibility of the entire budget. If cash cannot be provided, the whole plan will fall through. Moreover, a house must keep its credit good, and this cannot be done unless it is always able to meet obligations as they come due. Then too, a firm should know as nearly as possible what its condition will be at the end of the period—that is, it should have the balance sheet in mind as it will appear at the next

SUMMARY CASH BUDGET

From ________ to ________

I Month	II Balance beginning of month	III Estimated receipts for month	IV Total available for month	V Estimated expenditure for month	VI Estimated balance at close of month	VII Estimated deficit at close of month
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						
Year						

N.B. In the last line, for Year, place in column II the balance January 1, in column III the total of that column, in column IV the total of the first two items in the line, in column V the total of that column, and in column VI or VII the differences between the figures in that line in columns IV and V.

FIGURE 40b

closing. The construction of a cash budget involves tracing through the history of accounts and notes and other current assets and liabilities as they will probably develop during the period. Thus this work gives most of the data that will be needed in the current sections of the balance sheet, the merchandise and materials budget furnishing the other most important items. Predicting the state of the fixed items is comparatively simple, barring some catastrophe. A convincingly well drawn cash budget is of great advantage in approaching a bank for credit or an investment banker for financing a bond issue.

Who Should Make the Budget.—Involving as it does the entire business program for the period, the budget should be the concern of the highest executive; affecting every activity, it should include contributions from every department head. The exact method of coordinating these two cardinal principles of effective budgeting depends upon the type of business and the organization for operation. Frequently a good way to initiate the procedure is for the president and his highest assistants to form a budget committee which makes a preliminary draft of the plans for the coming period. These plans are sent to the department heads who work out the detailed plans for their own divisions. The controller or other budget officer then assembles these various plans and analyzes and revises each one with the department head concerned. As thus amended, the work may then be taken up by the budget committee which sees that it is properly coordinated and harmonized with the original comprehensive plan. Sometimes the committee has the controller formulate for comparison alternative budgets including the cash budgets and the projected statements. Department heads may be invited to sit with the committee while it considers special phases of the plans pertaining to those departments. When the final budget has been adopted, the controller communicates to each interested person the parts which concern his work.

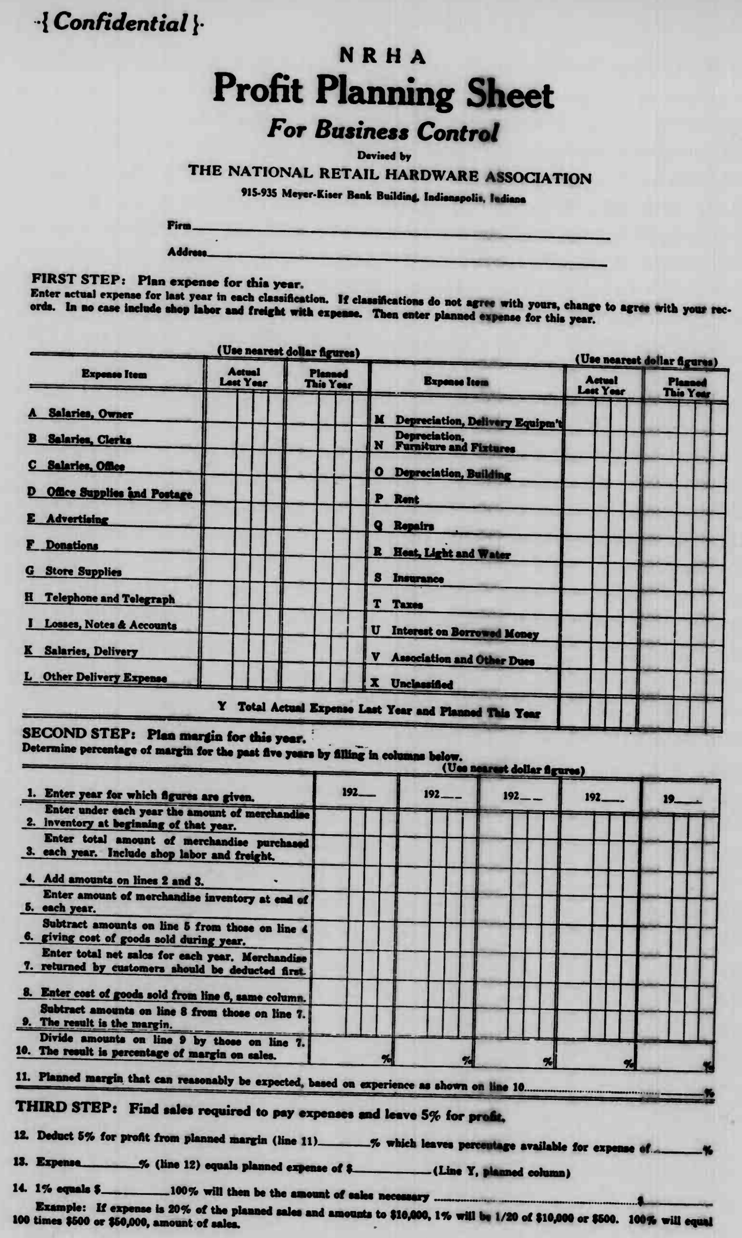
The budget should be completed a considerable time before the beginning of the period in order that each department may have ample opportunity to conform to its detailed plans. As experience reveals the necessity for amending the budget, the committee reconvenes and adopts the changes, which are communicated to the interested executives by the controller or other budget officer. These changes are not made without consultation with those immediately concerned. By such a system the budget is not an arbitrary order, but a joint product of the president, the committee, and the responsible department heads. It is formed in a psychological setting to enlist enthusiastic cooperation.

A carefully drawn form for a budget is illustrated by Figure 41. This schedule is in successful use by many members of the National Retail Hardware association.

Enforcing the Budget.—Unless it is put into practice, the budget is of small use, and it is necessary, therefore, to devise effective means of enforcement. The control of purchases of merchandise and materials has already been discussed. The buyer or purchasing officer must be informed regularly regarding sales and stock so that he can make daily or weekly estimates to prevent under- or overbuying. Similarly, the accounting department can furnish to each section and department head regular reports of his expenditures compared with the estimate. Provided the desired results are being obtained, there is usually no criticism when expenditures run below the estimate, but it is frequently necessary to have the approval of the budget committee if the allotment is exceeded. This constant comparison of the actual achievement and expenditures with the plan adopted is a vigorous incentive to live up to it.

That budgeting may be successful in comparatively small organizations has been amply demonstrated. The National Retail Hardware Association includes many stores that are operating under the system. The Association collects detailed statements from its members and calculates average and typical records for stores of different sizes in cities of various population groups. On the basis of these figures any owner can make up a budget for his store, Figure 41, or one of the Association's experts will make one for him. He makes a monthly comparison between his budget and his records on the form exhibited as Figure 42. This affords a very simple and effective means of follow-up and control. If he desires further help, he can make a full report to the Association office and receive a thorough analysis of his operations and suggestions for improvement.

Summary.—Unless a business is to drift aimlessly, it must be guided toward some specific goal by some definite plan of operation. If the plan exists only in the brain of the chief executive, it is liable to incompleteness and wild vagaries. If it is reduced to writing and includes a carefully made estimate of sales and costs, it is a budget, whether or not the name is used. If an estimate of cash receipts and payments is added the budget can be more effective and can afford material for estimated statements of profit and loss and for projected balance sheets. A properly made budget involves detailed planning for every department on the basis of careful estimates made by its chief, brought into coordination by a budget committee headed by the president or the highest officer. The budget must be enforced by furnishing regular information to each responsible executive and by placing limitations on their expenditures wherever necessary. The budget must have sufficient elasticity to be adaptable to changes of conditions, and



-{ *Confidential* }-

NRHA

Profit Planning Sheet

For Business Control

Devised by

THE NATIONAL RETAIL HARDWARE ASSOCIATION

915-935 Meyer-Kiser Bank Building, Indianapolis, Indiana

Firm____

Address____

FIRST STEP: Plan expense for this year.

Enter actual expense for last year in each classification. If classifications do not agree with yours, change to agree with your records. In no case include shop labor and freight with expense. Then enter planned expense for this year.

(Use nearest dollar figures) (Use nearest dollar figures)

Expense Item	Actual Last Year	Planned This Year	Expense Item	Actual Last Year	Planned This Year
A Salaries, Owner			M Depreciation, Delivery Equipm't		
B Salaries, Clerks			N Depreciation, Furniture and Fixtures		
C Salaries, Office			O Depreciation, Building		
D Office Supplies and Postage			P Rent		
E Advertising			Q Repairs		
F Donations			R Heat, Light and Water		
G Store Supplies			S Insurance		
H Telephone and Telegraph			T Taxes		
I Losses, Notes & Accounts			U Interest on Borrowed Money		
K Salaries, Delivery			V Association and Other Dues		
L Other Delivery Expense			X Unclassified		
			Y Total Actual Expense Last Year and Planned This Year		

SECOND STEP: Plan margin for this year.

Determine percentage of margin for the past five years by filling in columns below.

(Use nearest dollar figures)

1. Enter year for which figures are given.	192___	192___	192___	192___	19___
2. Enter under each year the amount of merchandise inventory at beginning of that year.					
3. Enter total amount of merchandise purchased each year. Include shop labor and freight.					
4. Add amounts on lines 2 and 3.					
5. Enter amount of merchandise inventory at end of each year.					
6. Subtract amounts on line 5 from those on line 4 giving cost of goods sold during year.					
7. Enter total net sales for each year. Merchandise returned by customers should be deducted first.					
8. Enter cost of goods sold from line 6, same column.					
9. Subtract amounts on line 8 from those on line 7. The result is the margin.					
10. Divide amounts on line 9 by those on line 7. The result is percentage of margin on sales.	%	%	%	%	%

11. Planned margin that can reasonably be expected, based on experience as shown on line 10.............______%

THIRD STEP: Find sales required to pay expenses and leave 5% for profit.

12. Deduct 5% for profit from planned margin (line 11)______% which leaves percentage available for expense of______%

13. Expense______% (line 12) equals planned expense of $________(Line Y, planned column)

14. 1% equals $\_\_\_\_\_\_\_\_100% will then be the amount of sales necessary ....$________

Example: If expense is 20% of the planned sales and amounts to $10,000, 1% will be 1/20 of $10,000 or $500. 100% will equal 100 times $500 or $50,000, amount of sales.

FIGURE 41

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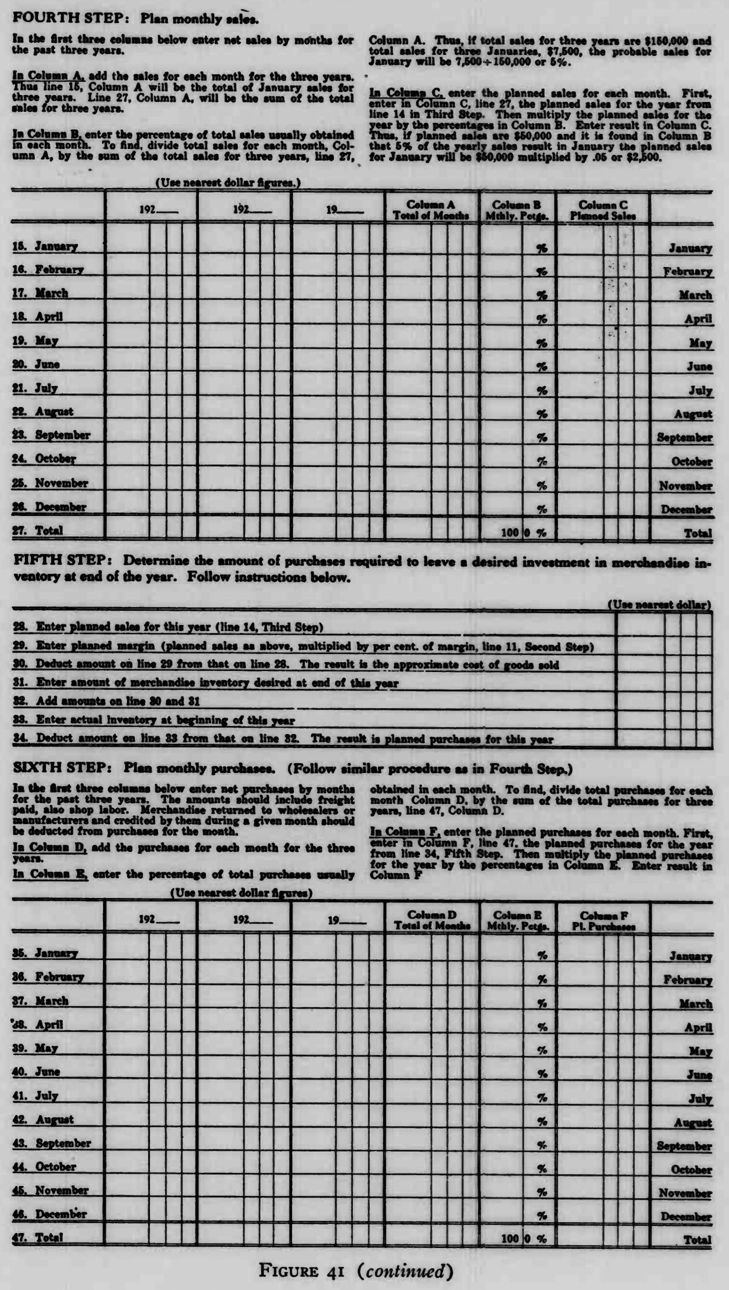


FOURTH STEP: Plan monthly sales.

In the first three columns below enter net sales by months for the past three years.

In Column A, add the sales for each month for the three years. Thus line 15, Column A will be the total of January sales for three years. Line 27, Column A, will be the sum of the total sales for three years.

In Column B, enter the percentage of total sales usually obtained in each month. To find, divide total sales for each month, Column A, by the sum of the total sales for three years, line 27, Column A. Thus, if total sales for three years are $150,000 and total sales for three Januaries, $7,500, the probable sales for January will be 7,500÷150,000 or 5%.

In Column C, enter the planned sales for each month. First, enter in Column C, line 27, the planned sales for the year from line 14 in Third Step. Then multiply the planned sales for the year by the percentages in Column B. Enter result in Column C. Thus, if planned sales are $50,000 and it is found in Column B that 5% of the yearly sales result in January the planned sales for January will be $50,000 multiplied by .05 or $2,500.

(Use nearest dollar figures.)

	192___	192___	19___	Column A Total of Months	Column B Mthly. Pctgs.	Column C Planned Sales	
15. January					%		January
16. February					%		February
17. March					%		March
18. April					%		April
19. May					%		May
20. June					%		June
21. July					%		July
22. August					%		August
23. September					%		September
24. October					%		October
25. November					%		November
26. December					%		December
27. Total					100 0 %		Total

FIFTH STEP: Determine the amount of purchases required to leave a desired investment in merchandise inventory at end of the year. Follow instructions below.

	(Use nearest dollar)
28. Enter planned sales for this year (line 14, Third Step)	
29. Enter planned margin (planned sales as above, multiplied by per cent. of margin, line 11, Second Step)	
30. Deduct amount on line 29 from that on line 28. The result is the approximate cost of goods sold	
31. Enter amount of merchandise inventory desired at end of this year	
32. Add amounts on line 30 and 31	
33. Enter actual inventory at beginning of this year	
34. Deduct amount on line 33 from that on line 32. The result is planned purchases for this year	

SIXTH STEP: Plan monthly purchases. (Follow similar procedure as in Fourth Step.)

In the first three columns below enter net purchases by months for the past three years. The amounts should include freight paid, also shop labor. Merchandise returned to wholesalers or manufacturers and credited by them during a given month should be deducted from purchases for the month.

In Column D, add the purchases for each month for the three years.

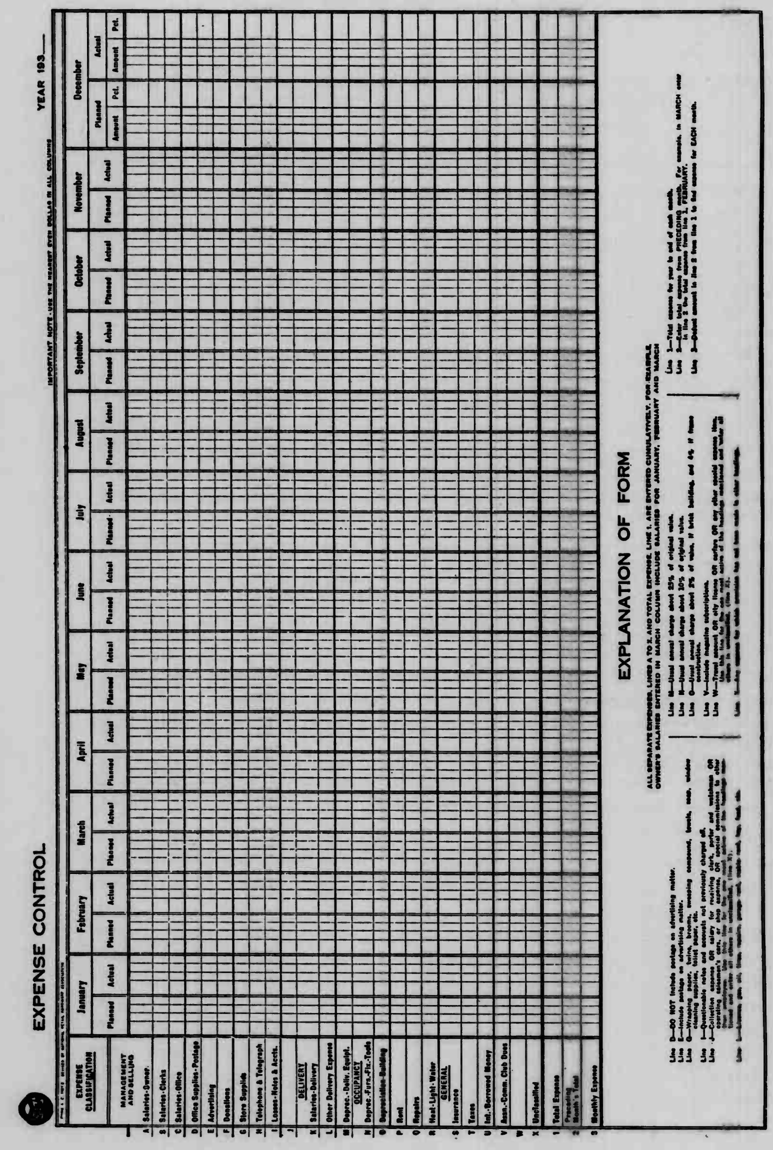
In Column E, enter the percentage of total purchases usually obtained in each month. To find, divide total purchases for each month Column D, by the sum of the total purchases for three years, line 47, Column D.

In Column F, enter the planned purchases for each month. First, enter in Column F, line 47, the planned purchases for the year from line 34, Fifth Step. Then multiply the planned purchases for the year by the percentages in Column E. Enter result in Column F

(Use nearest dollar figures)

	192___	192___	19___	Column D Total of Months	Column E Mthly. Pctgs.	Column F Pl. Purchases	
35. January					%		January
36. February					%		February
37. March					%		March
38. April					%		April
39. May					%		May
40. June					%		June
41. July					%		July
42. August					%		August
43. September					%		September
44. October					%		October
45. November					%		November
46. December					%		December
47. Total					100 0 %		Total

FIGURE 41 (*continued*)



EXPENSE CONTROL

IMPORTANT NOTE - USE THE NEAREST EVEN DOLLAR IN ALL COLUMNS

YEAR 193___

	EXPENSE CLASSIFICATION	January		February		March		April		May		June		July		August		September		October		November		December			
		Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned		Actual	
																								Amount	Pct.	Amount	Pct.
	MANAGEMENT AND SELLING																										
A	Salaries-Owner.																										
B	Salaries-Clerks																										
C	Salaries-Office																										
D	Office Supplies-Postage																										
E	Advertising																										
F	Donations																										
G	Store Supplies																										
H	Telephone & Telegraph																										
I	Losses-Notes & Accts.																										
J																											
	DELIVERY																										
K	Salaries-Delivery																										
L	Other Delivery Expense																										
M	Deprec.-Deliv. Equipt.																										
	OCCUPANCY																										
N	Deprec.-Furn.-Fix.-Tools																										
O	Depreciation-Building																										
P	Rent																										
Q	Repairs																										
R	Heat-Light-Water																										
	GENERAL																										
S	Insurance																										
T	Taxes																										
U	Int.-Borrowed Money																										
V	Assn.-Comm. Club Dues																										
W																											
X	Unclassified																										
1	Total Expense																										
2	Preceding Month's Total																										
3	Monthly Expense																										

EXPLANATION OF FORM

ALL SEPARATE EXPENSES, LINES A TO X, AND TOTAL EXPENSE, LINE 1, ARE ENTERED CUMULATIVELY. FOR EXAMPLE, OWNER'S SALARIES ENTERED IN MARCH COLUMN INCLUDE SALARIES FOR JANUARY, FEBRUARY AND MARCH

Line D—DO NOT include postage on advertising matter.
Line E—Include postage on advertising matter.
Line G—Wrapping paper, twine, brooms, sweeping compound, towels, soap, window cleaning supplies, toilet paper, etc.
Line I—Questionable notes and accounts not previously charged off.
Line J—Collection expense OR salary for receiving clerk, porter and watchman OR operating salesmen's cars, or shop expense, OR special commissions to other than employes. Use this line for the one most active of the headings mentioned and enter all others in unclassified, (line X).
Line L—License, gas, oil, tires, repairs, garage rent, stable rent, hay, feed, etc.

Line M—Usual annual charge about 25% of original value.
Line N—Usual annual charge about 10% of original value.
Line O—Usual annual charge about 2% of value, if brick building, and 4% if frame construction.
Line V—Include magazine subscriptions.
Line W—Travel account OR city license OR carfare OR any other special expense item. Use this line for the one most active of the headings mentioned and enter all others in unclassified, (line X).
Line X—Any expense for which provision has not been made in other headings.

Line 1—Total expense for year to end of each month.
Line 2—Enter total expense from PRECEDING month. For example, in MARCH enter in line 2 the total expense from line 1, FEBRUARY.
Line 3—Deduct amount in line 2 from line 1 to find expense for EACH month.

FIGURE 42

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the budget period should be short enough to permit fairly accurate planning.

Operation under a budget offers several distinct advantages. Its mere formulation should compel the management to realize the significance of business fluctuations and the necessity of forecasting and preparing to meet them. The budget sets standards against which to measure the success of each department, thus furnishing incentives and enforcing responsibility. The definite plans may result in ability to keep a plant busy uniformly throughout the year, in stabilizing employment, and facilitating a more satisfactory distribution of overhead. Although merchandise control is possible without a budget, a budget can hardly exist without such control—a means of preventing loss through over- or understocking. The budget unifies and coordinates the operation of the business as nothing else can; it is a valuable aid in an application for credit.

A budget cannot be made out of thin air. The system of planning it must arise from elementary beginnings and grow through experiment and experience. Thus, even a small establishment may operate under a simple budget which in time can be developed into a more specialized instrument of estimate and control.

QUESTIONS

1. Compare and contrast the standards set up by a budget and those set up by an engineer.
2. In what respects is it true that budgeting centers in the sales plans? What precautions should be taken to insure the profitableness of sales?
3. How would you distinguish controllable from uncontrollable expenses? What is the significance of this distinction in budgeting? Illustrate.
4. Would the purchasing agent of a factory have use for an "open to buy" formula? If so, devise such a formula.
5. Outline a form for the plant and equipment section of a budget, assuming that no considerable additions or alterations are contemplated.
6. Explain how you would estimate each item in Figure 40a.
7. Discuss the relation of business forecasting to budgeting.
8. Investigate and report on one of the following forecasting services: Babson's, Brookmire, The Harvard Business Review.
9. Show how you would forecast a balance sheet at the end of a budget period.
10. Explain the use of Figures 41 and 42.

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CHAPTER X

ANALYZING CHANGES IN NET PROFITS

Purpose of Analysis of Variations in Profits.—The making and using of budgets was discussed in the last chapter. More and more business men are seeing the need for detailed planning as a means to profits. Looking back over the performances of recent periods is of value, provided the survey is such as to disclose the developments, both favorable and unfavorable, and to afford a basis for decisions as to current policy. In the discussion of budgets it was pointed out that some expenses can be controlled while others are quite inelastic. The increase of some outlays may result in the decrease of others; the introduction of a factory planning department, for example, may bring about savings in other elements of production costs and thus accomplish a net reduction of expenses; a well planned advertising campaign may lessen the total selling costs. If a new policy has been introduced, its effects should be tested at the first opportunity. Thus an analysis of changes in net profits may reveal the comparative success or failure of policy, and in addition, afford the means of detecting the weak spots in organization or procedure, or offer a criterion for placing credit or blame.

The changes in net profits result from variations of (1) volume of business, (2) selling prices, (3) unit costs of manufacture, (4) expenses, or (5) financial or other incomes. It is the purpose of this chapter to present the mathematical methods of measuring the effects of these fluctuations, but it should be borne in mind constantly that mere mathematical comparison or measurement is but the starting point for fruitful investigation. For instance, a certain proportion of an increase in profit may be found to be due to a greater volume of sales. The question then arises, "Why did sales expand?" Perhaps there was additional selling effort, the advertising may have improved, salesmen may have been better trained, business may have become inflated by general conditions, the product may have been altered, a competitor may have withdrawn from the field, or prices may have been reduced. The alternatives mentioned by no means exhaust the possible explanations, nor are they mutually exclusive; they merely suggest the complicated nature of the problem of accounting for any business development. As another illustration, unit costs of production may have risen, and this may be the result of an increase in prices of material. These enhanced prices may in turn be due to the purchasing agent's faulty judgment, to a decision of the designing department to use higher-grade materials, or to some uncontrollable element, such as an insect pest or a revolution in a foreign country. Thus the location and measurement of a variation may give an incentive to penetrate into deeper underlying causes.

THE BLANK COMPANY

COMPARATIVE STATEMENT OF PROFIT AND LOSS
FOR THE CALENDAR YEARS 1930 AND 1931

	1930		1931		Increase or Decrease[a]	
	Amount	Per Cent	Amount	Per Cent	Amount	Per Cent
Net Sales	$1,500,000.00	100.00	$1,800,000.00	100.00	$300,000.00	—
Cost of Sales	900,000.00	60.00	1,080,000.00	60.00	180,000.00	—
Gross Profit on Sales	$ 600,000.00	40.00	$ 720,000.00	40.00	$120,000.00	—
Selling Expenses						
Advertising	$ 30,000.00	2.00	$ 34,000.00	1.89	$ 4,000.00	.11[a]
Sales Commissions	75,000.00	5.00	108,000.00	6.00	33,000.00	1.00
Sales Salaries	10,000.00	.67	25,000.00	1.39	15,000.00	.72
Traveling Expenses	40,000.00	2.67	72,000.00	4.00	32,000.00	1.33
Sundry Selling Expenses	6,000.00	.40	15,000.00	.83	9,000.00	.43
Total Selling Expenses	$ 161,000.00	10.74	$ 254,000.00	14.11	$ 93,000.00	3.37
Administrative Expenses						
Officers' Salaries	$ 125,000.00	8.33	$ 125,000.00	6.95	—	1.38[a]
Office Salaries	40,000.00	2.67	63,000.00	3.50	$ 23,000.00	.83
Supplies	6,000.00	.40	7,000.00	.39	1,000.00	.01[a]
Rent	8,000.00	.53	8,000.00	.44	—	.09[a]
Sundry Office Expenses	3,000.00	.20	4,000.00	.22	1,000.00	.02
Total Administrative Expenses	$ 182,000.00	12.13	$ 207,000.00	11.50	$ 25,000.00	.63[a]
Financial Income						
Purchases Discounts	$ 10,000.00	.67	$ 10,000.00	.55	—	.12[a]
Interest on Investments	5,000.00	.33	5,000.00	.28	—	.05[a]
Total Financial Income	$ 15,000.00	1.00	$ 15,000.00	.83	—	.17[a]
Financial Expenses						
Sales Discounts	$ 25,000.00	1.67	$ 30,000.00	1.67	$ 5,000.00	—
Interest Expense	18,000.00	1.20	20,000.00	1.11	2,000.00	.09[a]
Total Financial Expenses	$ 43,000.00	2.87	$ 50,000.00	2.78	$ 7,000.00	.09[a]
Net Profit	$ 229,000.00	15.26	$ 224,000.00	12.44	$ 5,000.00[a]	2.82[a]

FIGURE 43

[a] Decrease. Note also that the increases or decreases in the per-cent column are the differences of the per cents of the two statements and not the percentage of increase or of decrease.

Changes in the Volume of Business.—The change in volume of business may be measured in dollars or in physical units. Unless otherwise indicated, all the illustrations used in this chapter will be related to the Comparative Statement of Profit and Loss of The Blank Company, Figure 43. The increase in Net Sales has been $300,000.00, or 20 per cent of the 1930 sales. This information, by itself, absolutely fails to indicate whether more goods were disposed of in 1931 than in 1930. There are several methods of measuring the physical volume, directly or indirectly.

If just one article is produced or sold, the physical measure of volume is simple. If, for example, The Blank Company fabricates only one grade of silk stockings, it is comparatively easy to keep records showing how many dozen pairs were manufactured each year. For 1930 the output may have been 150,000 dozen pairs at an average cost of $6.00, and for 1931, 165,000 dozen at an average of $6.5454545. Similarly, a lumber mill may gauge its production in board feet, a flour mill in barrels, or a foundry in tons of castings. Such unit measures, however, are not always desirable because neither surface, weight, cubic capacity, nor count may give an accurate index of physical volume from a business point of view. Some light-weight castings may be much more difficult to make than others of great mass, and thus an increased unit cost per ton may indicate merely that a higher-grade or more intricate type of casting has been produced. Sometimes it is possible to measure physical output in some departments but not in others.

If the product or the merchandise handled is too varied to permit of direct physical measurement, indirect methods may be used; for example, a point system may be adopted. Each article made or sold may be rated as so many points according to its cost of production. Thus if furnaces are made, including replacement parts and several sizes of each part, the casting for the ash pit may be rated at 1 point per pound, that for the bowl at 4 points per pound, the dome at 6 points, the grates at 5 points, and the smaller parts at 8 points. The weight of each type of casting may be multiplied every month by the points per pound to secure the volume of production. The output of one period can be compared with that of another in terms of total points. In like manner, the manufacturers of any machinery and of its replacement parts, such as automobiles or agricultural machinery, can measure their physical output by a point system.

It may be necessary to measure the variation of physical output or of merchandise sold by means of prices, as is the case if the variety handled is great and if a point system has not been devised. Suppose that the accountant of The Blank Company has ascertained that the average of selling prices in 1931 was 8 per cent above that for 1930, and he desires to know what increase there has been in the physical volume of business. He reasons that if prices had not risen, but if the same articles had been sold in 1931 as actually were sold, the total net sales would have been $\frac{100}{108} \times$ $1,800,000.00, or $1,666,666.67. He proves this calculation by multiplying $1,666,666.67 by 1.08. Having thus found that the sales made in 1931 would have brought in $1,666,666.67 if the price level had been that of 1930, he deducts from that figure the sales of 1930, $1,500,000.00, and obtains $166,666.67, which represents the increased volume of business at 1930 prices. This $166,666.67 is 11 1/9 per cent of the 1930 sales, and he therefore concludes that the 1931 sales were 11 1/9 per cent greater in physical volume. To vary the assumption, suppose that the average sales prices of The Blank Company were 10 per cent lower in 1931 than in 1930. Then $1,800,000.00 is 90 per cent of what would have been realized had the same goods been sold in 1931 at 1930 prices. Multiply $1,800,000.00 by $\frac{100}{90}$, which is equivalent to dividing it by 0.90, and the result, $2,000,000.00, is the amount which the 1931 sales would have brought at 1930 prices. Since 1930 sales were $1,500,000.00, it is clear, under this assumption, that the physical volume of business has increased 33 1/3 per cent.

A formula may be used to express the calculation of the change in physical volume of business:

Let V = the change in business expressed as a decimal fraction of the physical volume of business done the first period.
S_1 = first period sales expressed in dollars.
S_2 = second period sales expressed in dollars.
r = the per cent rise in the average price level from the first to the second period. If average prices fell r would have a negative value. r is expressed as a decimal, *i.e.*, 10 per cent would be .1.

$$\text{Then } V = \frac{\dfrac{S_2}{1+r} - S_1}{S_1}.$$

A positive value of V will indicate an increase in the physical volume of sales, a negative value a decrease.

Sometimes it is possible to compute the change in physical volume of sales by means of data concerning unit costs. If, for example, it is known that the unit costs of The Blank Company were 8 per cent higher in 1931 than in 1930, the change in physical volume can be calculated by the same formula as was used in finding the change in physical volume when the change in average sales prices is known, except that S_1 and S_2 will represent the cost of sales in dollars for the first and the second periods respectively. In this case, then,

Let S_1 = $900,000.00
S_2 = $1,080,000.00
r = .08

Then

$$V = \frac{\dfrac{1{,}080{,}000.00}{1.08} - 900{,}000.00}{900{,}000.00}$$

$$V = \frac{1{,}000{,}000.00 - 900{,}000.00}{900{,}000.00} = \frac{1}{9}$$

$$V = .11\ 1/9.$$

The change in profits that has resulted from the change in physical volume of sales can be computed easily as soon as V is known. For illustration, the first assumption may be recalled, namely, that The Blank Company was making silk stockings and produced 150,000 dozen pairs in 1930 and 165,000 dozen pairs in 1931, an increase of 10 per cent. The sales in 1930 were $1,500,000.00. If there had been no changes either in selling or cost prices, a 10-per-cent increase in physical volume would have brought about a similar increase in dollar sales, or a gain of $150,000.00. In 1930 the gross profits were 40 per cent of sales. Since 40 per cent of $150,000.00 is $60,000.00, the increase in physical volume of business is responsible for an increase of $60,000.00 in the gross profits on sales. For the manner in which this conclusion is presented in a Statement Accounting for the Increase of Gross Profits, see Figure 44.

On the basis of a different assumption, namely, that the selling prices of The Blank Company in 1931 were 8 per cent higher on the average than in 1930, it was found that the physical volume of sales had increased 11 1/9 per cent. Therefore, if there had been no change in selling prices, the 1931 sales would have been 1.11 1/9 times $1,500,000.00, or $1,666,666.67, which is $166,666.67 more than in 1930. Since the rate of gross profit in 1930 was 40 per cent, this increase in the physical volume of business would be sufficient to account for 40 per cent of $166,666.67, or $66,666.67. The method of presenting this conclusion in the Statement Accounting for the Increase in Gross Profit appears in Figure 45.

A third assumption, that sales prices had decreased 10 per cent from 1930 to 1931, led to the conclusion that the physical volume of sales had increased 33 1/3 per cent. Had there been such an increase, the 1931 sales at 1930 prices would have been $2,000,000.00, or $500,000.00 more than in 1930. Therefore, if prices and unit costs had remained uniform for the two years, this increased volume would have brought about an enhancement of gross profits equal to 40 per cent of $500,000.00, or $200,000.00. This is presented in Figure 46.

The fourth assumption, that unit costs had increased 8 per cent, implied that physical volume had increased 11 1/9 per cent, which is the same rate of increase as that in the second assumption. See, however, Figure 47.

The method of measuring the effects of change of physical volume of sales upon profits may be summarized as follows: Express the change in physical volume as a per cent of the volume of the first period. Multiply the dollar sales of the first period by this per cent to obtain the dollar increase or decrease of sales had there been no variation in selling prices. Multiply this dollar increase or decrease of sales by the per cent of gross profit realized on sales in the first period. The result will be the amount by which gross profits would have varied if there had been no change in either unit costs or selling prices.

THE BLANK COMPANY

STATEMENT ACCOUNTING FOR INCREASE OF GROSS PROFITS[a]

1930, 1931

Gross Profits, 1931	$ 720,000.00	
Gross Profits, 1930	600,000.00	
Increase of Gross Profits		$120,000.00
Accounted for as follows:		
Increased gross profits due to increased selling prices		
Sales, 1931	$1,800,000.00	
Sales, 1931 at 1930 prices	1,650,000.00	
Increase due to increased sales prices		$150,000.00
Increased gross profits due to increased volume of sales		
Sales, 1931 at 1930 prices	$1,650,000.00	
Sales, 1930	1,500,000.00	
40% of increased sales volume, 40% of	$ 150,000.00	60,000.00
Total of factors increasing gross profits		$210,000.00
Less: Decreased gross profits due to increased unit costs of goods sold		
Cost of sales, 1931	$1,080,000.00	
Cost of sales, 1931 on 1930 basis, $900,000.00 + 10% of $900,000.00	990,000.00	90,000.00
Net increase of gross profits		$120,000.00

FIGURE 44

[a] Assumed that physical volume of sales increased 10 per cent.

The Effects of Changes in Selling Prices.—To measure the effect of variations in selling prices, it is necessary only to find the difference between the actual sales of the second period expressed in dollars and what those sales would have been if the same goods had been disposed of at the prices of the first period. If the change in physical volume is known, this computation is very simple. The calculation will be illustrated on the basis of the same assumptions that were made in the preceding section.

On the assumption that the physical volume of sales had increased 10 per cent, the sales of The Blank Company in 1931 would have been 110 per cent of the sales of 1930, or $1,650,000.00, provided there had been no change in the selling prices. As a matter of fact, the sales were $1,800,000.00. Therefore the difference, $150,000.00, is the amount by which the 1931 profits were enhanced by increased prices. The manner in which this is shown in the Statement Accounting for Changes of Gross Profits appears in Figure 44.

THE BLANK COMPANY

STATEMENT ACCOUNTING FOR THE INCREASE IN GROSS PROFIT[a]

1930, 1931

Gross Profit, 1931	$ 720,000.00	
Gross Profit, 1930	600,000.00	
Increase in Gross Profit		$120,000.00
Accounted for as follows:		
Increase of gross profits due to increased volume of sales		
Sales, 1931 on basis of 1930 prices	$1,666,666.67	
Sales, 1930	1,500,000.00	
40% of increased volume, 40% of	$ 166,666.67	$ 66,666.67
Increase of gross profits due to increased selling prices		
Sales, 1931	$1,800,000.00	
Sales, 1931 on basis of 1930 prices	1,666,666.67	
Increase due to higher prices		133,333.33
Total of factors increasing gross profits		$200,000.00
Less: Decreased gross profits due to increased unit costs of sales		
Cost of sales, 1931	$1,080,000.00	
Cost of sales, 1931 on basis of 1930 costs	1,000,000.00	80,000.00
Net Increase of Gross Profits		$120,000.00

FIGURE 45

[a] Assumed that sales prices increased 8 per cent.

The second assumption, that sales prices in 1931 were 8 per cent below those of 1930, formed the basis of the conclusion that the physical volume of sales in 1931 exceeded that of 1930 by 11 1/9 per cent of the 1930 figure. If the physical volume had increased 11 1/9 per cent without any change in price, the 1931 sales would have been 111 1/9 per cent of $1,500,000.00, or $1,666,666.67. Since the actual

1931 sales were $1,800,000.00, increased prices must have resulted in an enhancement of gross profits of $133,333.33. This is presented in Figure 45.

The third assumption was that the 1931 price level was 10 per cent lower than that of 1930, and it was found that the physical volume of sales increased 33 1/3 per cent. Had this growth in business been attained without changing 1930 prices, the sales of 1931 would have amounted to $2,000,000.00. But the 1931 sales were $1,800,000.00. Hence the lowered prices account for a $200,000.00 diminution in gross profits. How this diminution was overbalanced by other elements is shown in Figure 46.

THE BLANK COMPANY

STATEMENT ACCOUNTING FOR INCREASE OF GROSS PROFITS[a]

1930, 1931

Gross Profits, 1931	$ 720,000.00	
Gross Profits, 1930	600,000.00	
Increase of Gross Profits		$120,000.00
Accounted for as follows:		
Increased gross profits due to increased volume of sales		
Sales, 1931 at 1930 prices	$2,000,000.00	
Sales, 1930	1,500,000.00	
40% of increased sales volume, 40% of	$ 500,000.00	$200,000.00
Increased gross profits due to decreased unit costs		
Costs, 1931 on 1930 basis, $900,000.00 × 4/3	$1,200,000.00	
Costs, 1931	1,080,000.00	
Decreased costs		120,000.00
Total of factors increasing gross profits		$320,000.00
Less: Decrease of gross profits due to decreased selling prices:		
Sales, 1931 on 1930 price basis	$2,000,000.00	
Sales, 1931	1,800,000.00	
Decrease due to decreased selling prices		200,000.00
Net Increase of Gross Profits		$120,000.00

FIGURE 46

[a] Assumed that sales prices decreased 10 per cent.

The fourth assumption, that unit costs had risen 8 per cent, led to the conclusion that sales volume had grown 11 1/9 per cent when measured in physical terms. Since this increase is identical with that found under the second assumption, it warrants the same conclusions as to the effects of price changes on profits. Figure 47 is based on the fourth assumption.

If either the change in price level is known or the variation of physical volume can be computed, it is possible to estimate the dollar sales of the second period at the price level of the first. After making this calculation the effect of price changes in dollars can be found by subtraction.

THE BLANK COMPANY

STATEMENT ACCOUNTING FOR INCREASE OF GROSS PROFITS[a]

1930, 1931

Gross Profits, 1931	$ 720,000.00	
Gross Profits, 1930	600,000.00	
Increase of Gross Profits		$120,000.00
Accounted for as follows:		
Increased gross profits due to increased selling prices		
Sales, 1931	$1,800,000.00	
Sales, 1931 on basis of 1930 selling prices, $1,500,000.00 × 10/9	1,666,666.67	
Increase due to increased sales prices		$133,333.33
Increased gross profits due to increased physical volume of sales		
Sales, 1931 at 1930 selling prices	$1,666,666.67	
Sales, 1930	1,500,000.00	
40% of increased volume, 40% of	$ 166,666.67	66,666.67
Total of factors increasing gross profits		$200,000.00
Less: Decrease of gross profits due to increased unit costs		
Cost of sales, 1931	$1,080,000.00	
Cost of sales, 1931 on basis of 1930 unit costs, $1,080,000.00 ÷ 1.08	1,000,000.00	80,000.00
Net Increase of Gross Profits		$120,000.00

FIGURE 47

[a] Assumed that unit costs increased 8 per cent.

The accountant should not, of course, forget his economics. In general, an increase in prices tends to reduce the volume of sales, and a lowering of prices to increase demand for the product. Therefore, the effect of a change in price level cannot be measured merely as the difference between the net sales of one period and what those sales would have been had the prices been identical with the charges of a preceding period. In all probability changes of sales prices will have been forced on a concern by outside factors. If there has been overproduction or overbuying, price cuts may have been necessary to reduce stocks. In reality, the relations of prices to volume are very complex. Nevertheless, there is a real accomplishment in attempting to account for the changes of gross profits by measuring, first, the variation due to the change in physical volume alone, as in the preceding section, second, the variation due to price changes alone, as in this section, and third, the variation arising from fluctuations of unit cost of sales, as in the following section. The statements accounting for changes in gross profits do not make any pretense of measuring causes; they merely set forth in turn what would have been the effect on profits of the change in physical volume had sales prices and unit costs been constant, what would have been the result from price changes had the costs not altered, and what fluctuation of profits would have occurred if the unit costs had changed but prices had remained fixed. The sum of the three amounts found in these three computations equals the change in the gross profits. If one keeps in mind that volume, unit costs, and sales prices affect each other in many ways, he can use these analyses to represent approximately the relative importance of these three factors in influencing profits.

Changes in Unit Costs.—The amount of change in gross profits attributable to changes in unit costs is computed in a manner similar to the calculation of the effect imputed to variation in selling prices. If the change in physical volume is known, the cost of sales for the second year or period is computed on the assumption that unit costs have not varied, and the difference between this and the actual cost of sales is considered the effect of changes of unit costs upon net profits. This computation will be illustrated by the first three of the assumptions in the two preceding sections.

The first assumption was that the physical volume of sales had increased 10 per cent. Since the cost of sales in 1930 was $900,000.00, the goods sold in 1931 would have cost 110 per cent of that figure, or $990,000.00, if there had been no change in costs. But the actual cost of sales was $1,080,000.00. Therefore the increased unit costs of goods sold accounts for a decrease of $90,000.00 in the gross profits. In Figure 44 are presented the three elements which have combined to bring about the increase of $120,000.00 in gross profits. Had the physical volume of sales increased 10 per cent without any alterations in selling prices or unit costs, the gross profits would have risen $60,000.00. Had selling prices on the 1931 volume been increased as they were without any increase of unit costs, the gross profits would have been enhanced another $150,000.00. The sum of these two tendencies to increase is $210,000.00. But the increased unit costs operated toward decreasing profits $90,000.00, leaving the net increase $120,000.00. Thus the statement accounts for all the elements which combined to cause the change in gross profits, and attributes a dollar value to each.

The second assumption was that sales prices had increased 8 per cent, which necessitated the conclusion that physical volume had increased 11 1/9 per cent. Had this increase been achieved without alteration of unit costs, the cost of sales in 1931 would have been 111 1/9 per cent of $900,000.00, or $1,000,000.00. Since the actual cost of sales was $1,080,000.00, the increased unit cost of sales would account for a decrease of $80,000.00 in the gross profits. This decrease was overcome, however, by the $66,666.67 increase imputable to the larger volume, and the $133,333.33 increase due to the enhanced sales prices. The combination of these elements into a coherent statement is illustrated by Figure 45.

THE BLANK COMPANY

COMPARATIVE STATEMENT OF COST OF SALES

1930, 1931

	1930		1931		Increase or Decrease[a]	
	Amount	Per Cent	Amount	Per Cent	Amount	Per Cent
Materials	$300,000.00	33.33	$ 440,000.00	40.74	$140,000.00	7.41
Direct Labor	425,000.00	47.22	454,000.00	42.04	29,000.00	5.18[a]
Indirect Labor	30,000.00	3.33	32,000.00	2.96	2,000.00	.37[a]
Power	60,000.00	6.67	64,000.00	5.93	4,000.00	.74[a]
Depreciation	70,000.00	7.78	70,000.00	6.48	—	1.30[a]
Sundry Factory Expense	15,000.00	1.67	20,000.00	1.85	5,000.00	.18
	$900,000.00	100.00	$1,080,000.00	100.00	$180,000.00	—

[a] In the column of per cents in this and the following figures the decreases are marked with the "a" while the increases are not so marked.

FIGURE 48

The third assumption was that sales prices had decreased 10 per cent, which indicated an increase of 33 1/3 per cent in physical volume of business. Had there been no change in unit costs, this increased volume would have entailed a cost of sales in 1931 of $1,200,000.00. But the actual cost of sales was $1,080,000.00. Thus, on the basis of the increased volume, the lowered unit cost of sales would have contributed $120,000.00 to the enhancement of the gross profit. The effect on profits attributable to the increased volume alone would have been an increase of $200,000.00; but the lowered prices tended to diminish the profits by $200,000.00, so that the net effect of the three elements is an increase of gross profits of $120,000.00, as appears in Figure 46.

These illustrations demonstrate the simplicity of the arithmetical process of measuring the change in gross profits which should be attributed to the variation of unit costs of the goods sold. It is, however, profitable to probe further into this problem. Figure 48 is a comparative statement of the cost of sales of The Blank Company, drawn from the books. As a means of showing the actual expenditures in manufacture and their relative importance, this statement is perfect; moreover, it shows the changes in the various elements of manufacturing cost. However, it fails to bring out the relation between these elements and the volume of production. This is overcome by a comparison similar to Figure 49, which parallels the actual costs in 1931 with what those costs would have been for the same volume at 1930 rates. This statement was constructed on the assumption that the physical volume of sales had increased 10 per cent. The first money column is therefore made up as follows: in 1930 materials cost $300,000.00, but since 1931 production was 10 per cent greater, the 1931 materials would have cost $330,000.00 if their prices had been the same as in 1930. A similar computation is made for each item in the column headed "1931 on 1930 basis." This tabulation gives a basis for determining which costs have risen and which have fallen relatively to the total amount produced. In a comparison such as that in Figure 48, if one expenditure changed in relation to the total production, every other expenditure would change as a percentage of total cost. But in the type of table in Figure 49, each outlay stands by itself. Neither of these should be used alone; they are supplementary.

THE BLANK COMPANY

SCHEDULE I

COMPARATIVE STATEMENT OF COST OF SALES
1931 ON 1930 BASIS AND 1931 ACTUAL

	1931 Cost on 1930 Basis	Actual Cost 1931	Increase or Decrease[a]
Materials	$330,000.00	$ 440,000.00	$110,000.00
Direct Labor	467,500.00	454,000.00	13,500.00[a]
Indirect Labor	33,000.00	32,000.00	1,000.00[a]
Power	66,000.00	64,000.00	2,000.00[a]
Depreciation	77,000.00	70,000.00	7,000.00[a]
Sundry Factory Expenses	16,500.00	20,000.00	3,500.00
	$990,000.00	$1,080,000.00	$ 90,000.00

FIGURE 49

In actually using these tables, they should be studied item by item. An attempt should be made, for instance, to discover why the relative material costs have risen so markedly, while in every other item, except Sundry Factory Expenses, the relative cost has decreased. The actual amount charged to Depreciation was the same both years; therefore the 1931 allowance is relatively smaller. Should this be the case? Can it be that the plant was used enough more in 1931 than in 1930

SCHEDULE II

COMPARATIVE STATEMENT OF SELLING EXPENSE
1931 ON 1930 BASIS AND 1931 ACTUAL

	Expense 1931 on 1930 Basis	Actual Expense 1931	Increase or Decrease[a]
Advertising	$ 36,000.00	$ 34,000.00	$ 2,000.00[a]
Sales Commissions	90,000.00	108,000.00	18,000.00
Sales Salaries	12,000.00	25,000.00	13,000.00
Traveling Expenses	48,000.00	72,000.00	24,000.00
Sundry Selling Expenses	7,200.00	15,000.00	7,800.00
	$193,200.00	$254,000.00	$60,800.00

FIGURE 50a

SCHEDULE III

COMPARATIVE STATEMENT OF ADMINISTRATIVE EXPENSE
1931 ON 1930 BASIS AND 1931 ACTUAL

	Expense 1931 on 1930 Basis	Actual Expense 1931	Increase or Decrease[a]
Officers' Salaries	$150,000.00	$125,000.00	$25,000.00[a]
Office Salaries	48,000.00	63,000.00	15,000.00
Supplies	7,200.00	7,000.00	200.00[a]
Rent	9,600.00	8,000.00	1,600.00[a]
Sundry Office Expense	3,600.00	4,000.00	400.00
	$218,400.00	$207,000.00	$11,400.00[a]

FIGURE 50b

SCHEDULE IV

COMPARATIVE STATEMENT OF FINANCIAL INCOME AND EXPENSE
1931 ON 1930 BASIS AND 1931 ACTUAL

	1931 on 1930 Basis	1931 Actual	Increase or Decrease[a]
Financial Income			
Purchases Discounts	$ 12,000.00	$ 10,000.00	$ 2,000.00[a]
Interest on Investments	6,000.00	5,000.00	1,000.00[a]
	$ 18,000.00	$ 15,000.00	$ 3,000.00[a]
Financial Expense			
Sales Discounts	$ 30,000.00	$ 30,000.00	—
Interest Expense	21,600.00	20,000.00	$ 1,600.00[a]
	$ 51,600.00	$ 50,000.00	$ 1,600.00[a]

FIGURE 50c

to justify a larger charge to depreciation? A drop in this one of the expenses relative to production may mean neglect in booking the increased depreciation, and raise the question whether the necessary additional outlays for maintenance were made. In other words, what appears to be a saving, may be mere neglect to make proper outlays or adjustments. That is why the relative decreases as well as the increases should receive attention, for sometimes either one may point the way to permanent means of cutting expenses.

Analysis of Expenses and Incomes.—Figure 43 has been made so detailed that it includes a comparison of the Selling Expenses, the Administrative Expenses, the Financial Expenses, and the Financial Incomes both in dollars and in percentages of net sales. Such comparisons are of considerable value to anyone wishing to understand a business and its fluctuations. The example shows that the increased sales have been obtained at a higher selling cost, the greatest increases being in commissions and traveling expenses. That this increase has been relative as well as actual appears when the percentages of Selling Expenses to Net Sales are considered. Although the Administrative Expenses have actually increased in amount, they have become a smaller proportion of Net Sales. Likewise, these figures demonstrate that both Financial Income and Financial Expense have become smaller as a percentage of sales. This type of comparison is interesting and helpful, but it is possible to show the effect of these relative changes more emphatically. The schedules in Figures 50a, 50b and 50c show the dollar variations in a comparable manner. In 1930 Advertising was 2 per cent of net sales. Two per cent of the 1931 sales is $36,000.00, but the actual advertising expenditure in 1931 was $34,000.00, a relative decline of $2,000.00. Similarly, Sales Commissions were 5 per cent of the 1930 net sales. Five per cent of the 1931 sales would be $90,000.00, but the actual Sales Commissions in 1931 were $108,000.00, a relative increase of $18,000.00. In this way each item in the first money column may be computed by applying the 1930 per cent to the 1931 net sales. It is simpler, however, to make each item in the first money column in these figures, 120 per cent of the 1930 actual, because dollar sales increased 20 per cent. This makes the relative increases and decreases in the 1931 expenses stand out clearly in terms of dollars—language which appeals to the business man.

Valuable as are such comparative tables as those just described, they have two rather serious defects. First, in comparing the results of one period with those of a preceding period, there is no assurance that the comparison is with a standard or normal criterion. For this reason it is advisable, whenever possible, to compare the elements of cost of sales with "standard costs" as well as with those of another period, and to compare other expenses with the expense budget. The second defect is the uncertainty that dollar sales afford the best basis for a comparison of the expenses of two periods. In the illustrations in Figures 50a, 50b, and 50c, each item in the first money column is 120 per

THE BLANK COMPANY

STATEMENT ACCOUNTING FOR DECREASE OF NET PROFITS

1930, 1931

Net Profits, 1930		$229,000.00	
Net Profits, 1931		224,000.00	
Decrease in Net Profits			$ 5,000.00
Accounted for as follows:			
Increase in Gross Profits			
Increase due to increased selling prices			
Sales, 1931	$1,800,000.00		
Sales, 1931 at 1930 prices	1,650,000.00	$150,000.00	
Increase due to increased volume of sales			
Sales, 1931 at 1930 prices	$1,650,000.00		
Sales, 1930	1,500,000.00		
40% of increased sales volume, 40% of	$ 150,000.00	60,000.00	
		$210,000.00	
Less: increased unit costs of goods sold			
Cost of sales, 1931	$1,080,000.00		
Cost of sales, 1931 on 1930 basis	990,000.00	90,000.00	
Net increase in gross profit			$120,000.00
Increase in Selling Expenses			
Selling expense, 1931	$254,000.00		
Selling expense, 1930	161,000.00	$ 93,000.00	
Increase in Administrative Expense			
Administrative expense, 1931	$ 207,000.00		
Administrative expense, 1930	182,000.00	25,000.00	
Increase in Financial Expense			
Financial expense, 1931	$ 50,000.00		
Financial expense, 1930	43,000.00	7,000.00	
			$125,000.00
Net Decrease of Net Profit			$ 5,000.00

FIGURE 51

(NOTE. Schedules I, II, III, and IV furnish additional information. The data on which this statement is based are found in Figure 43, the Comparative Statement of Profit and Loss, and in Figure 48, the Comparative Statement of Cost of Sales.)

cent of the actual item in 1930 because the money volume of sales had increased 20 per cent. But suppose the physical volume of sales had increased 10 per cent; would it not have been better in that case to consider each 1931 item on a 1930 basis as 110 per cent of the actual 1930 amount? A table based on this latter principle would bring out results considerably different from those in the schedules actually prepared. Moreover, some expenditures are much less elastic than others, some items being fixed and others wholly controllable. Variations in the controllable expenses have a different significance from those in the fixed charges, which will be apparent in a thorough analysis. These criticisms are valid; but it is also true that comparisons and analyses on any available basis which appeals to common sense are far more valuable than none at all. The practical accountant does not give up because his work cannot be above all criticism—he makes the most of the best data available.

The Complete Statement.—Figure 51, a complete Statement Accounting for Change in Net Profits, is an interpretation of the Comparative Statement of Profit and Loss in Figure 43, based on the assumption that the physical volume of sales has increased 10 per cent. Thus the section of this statement which deals with gross profit is similar to Figure 44. Since such an interpretation must be in summary form if it is to be intelligible, references are made to Schedules I, II, III, and IV, and to Figures 43 and 48 for the detailed comparisons. A complete statement like this, which accounts for the variation in profits from the previous period and from the budget, forms a valuable part of the regular report to the executive and the board of directors.

An Alternative Method of Analysis of Changes in Gross Profits.—It is sometimes desired to make a statement accounting for the changes in net profits when there are no data on the variation of the physical volume of sales. Suppose that the following trading statement is included in the comparative statements of profit and loss and that there are no data available for determining this change either directly or indirectly:

THE CERTAIN SALES COMPANY
COMPARATIVE TRADING STATEMENT
1930, 1931

	Calendar Year 1930		Calendar Year 1931		Increase or Decrease[a]	
Sales	$250,000.00	100.00%	$300,000.00	100.00%	$50,000.00	
Cost of Sales	150,000.00	60.00%	210,000.00	70.00%	60,000.00	10.00%
Gross Profit	$100,000.00	40.00%	$ 90,000.00	30.00%	$10,000.00[a]	10.00%[a]

This statement does show, however, that the dollar volume in sales has increased $50,000.00. Had the 1930 rate of gross profit been realized in 1931, the gross profits would have increased 40 per cent of $50,000.00, or $20,000.00. However, the rate of gross profit in 1931 is 10 per cent less than it was in 1930. Applying this 10 per cent to the total 1931 sales of $300,000.00 gives $30,000.00 as the decrease in gross profit because of the change in its rate. The statement accounting for this change in the gross profits will therefore appear as in Figure 52:

THE CERTAIN SALES COMPANY
STATEMENT ACCOUNTING FOR DECREASE OF GROSS PROFIT
1930, 1931

Gross Profits 1930		$100,000.00	
Gross Profits 1931		90,000.00	
Decrease in Gross Profit			$10,000.00
Accounted for as follows:			
Decrease in gross profit due to decreased rate of gross profit:			
Rate of gross profit 1930	40.00%		
Rate of gross profit 1931	30.00%		
Decrease of rate	10.00%		
10% of $300,000.00			$30,000.00
Increase in gross profit due to increased sales volume:			
Sales, 1931		$300,000.00	
Sales, 1930		250.000.00	
40.00% of the increase, 40.00% of		$ 50,000.00	20,000.00
Net decrease of gross profit			$10,000.00

FIGURE 52

If the analysis of the change in gross profit follows this form, the balance of a statement accounting for changes in net profits would be like the corresponding sections in Figure 51. Moreover, analyses of the various groups of expenses could be made as in Figures 50a, 50b and 50c, but no such comparison of the elements in cost of sales as Figure 49 could be constructed. Of course this method of accounting for the changes in gross profits is but a makeshift as compared to that first developed, but it does show the relative importance of the changes in dollar volume and in the gross margin between selling prices and cost of sales.

Comparison with Standard Costs.—The tendency to standardization in industry has affected the quality of the product, the general factory conditions, the types of machinery, tools and equipment, the planning of work, and even the motions of the operatives. As used here, a standard is a norm of comparison which has been set up after careful study of what is ideal and what is the nearest practicable approach to the ideal. The typical standard may require conformity within certain established limits of variation: the bore of a cylinder, for example, may be allowed a deviation of 0.0005 of an inch from the norm. The search for the most satisfactory alloys for certain uses, for the exact shapes of tools and speeds of machines that will result in the maximum economy, for "the one best way" of performing an operation, and for numerous other criteria of the highest efficiency, has led to a similar inquiry into what costs should be. When a careful study has been made of the costs of manufacture under standard conditions, the resulting cost may be called a standard cost; that is, a standard cost is a carefully worked out norm of comparison, used as a basis for the constructive criticism of actual costs.

In developing a standard cost, first attention has to be given to materials. The exact quantity of material should be chosen only after a careful study of the service required and the workability of the substance. The quality of this material per unit or per thousand units of product is then determined, due allowance being made for waste even under the most efficient factory conditions. The next step is the ascertaining of the correct price to be paid for this material, and this may involve the determination of the optimum size of orders, taking into consideration quantity prices, cost of storing stock, and possibility of deterioration. The standard may have to recognize the possibility of variations in material prices on the open market.

The standard for labor costs is likewise a matter for painstaking investigation. If time and motion studies are available, the data so gathered will furnish satisfactorily exact information as to the amounts of labor necessary. The costs of this labor will, in addition, involve the wage rates. These rates may be contractual if the men belong to stable unions, or they may have been worked out experimentally to maintain certain standards of efficiency or productivity. The wages of the operatives may involve piece rates or bonuses combined with either time wages or piece wages. It is evident that the establishment of a standard labor cost involves the knowledge of the actual output of laborers, as well as of their output under ideal conditions.

Setting the standard of manufacturing expense also opens up a difficult field of research. While past experience may give rates based on direct labor time, direct labor wages, or machine hours, such ratios are not essentially satisfactory because study may reveal possible economies. On the other hand, study might show that it would be advantageous to increase manufacturing expense in order to provide for the more effective use of man power and so achieve the minimum of total costs.

While such fixed standard costs would approach the ideal, the practicable should never be forgotten. The chemical and physical properties of materials can be analyzed accurately and can be counted on to remain constant according to certain laws, but prices are not fixed for any considerable period, and economic conditions cannot be analyzed with certainty. Thus there is a considerable difference between engineering standards and standard costs—in contrast with the former, the latter must possess a type of flexibility. Accountants often have to accept an adaptation of past performances in setting their standards of manufacturing expense, because it is impossible to determine exactly what this item should be. Therefore standard costs, like manufacturing standards, are apt to be the nearest commercially feasible approach to the ideal. As manufacturing standards usually allow limits of tolerance, standard costs must be established for different volumes of production and for varying prices of raw materials. Moreover, as improved machinery or processes entail changes in manufacturing standards, so altered economic or industrial conditions may necessitate revised standard costs.

STANDARD COSTS

	Production 25,000 Units		Production 40,000 Units	
	Total Cost	Unit Cost	Total Cost	Unit Cost
Material	$ 25,000.00	$1.00	$ 38,000.00	$ .95
Direct Labor	62,500.00	2.50	100,000.00	2.50
Manufacturing Expense	50,000.00	2.00	65,000.00	1.625
Totals	$137,500.00	$5.50	$203,000.00	$5.075

FIGURE 53

Standard costs may be used merely as a basis of criticism of actual costs, or they may be incorporated in the books. Suppose that the standard costs have been set as in Figure 53. In constructing this table it has been assumed that one-half of the manufacturing expense is fixed and that the other half varies proportionally to the number of units produced. During the period 39,000 units were produced at an actual cost as shown in Figure 54; and this cost is compared with the standard costs based on the manufacture of 40,000 units. Such comparative data afford a possible starting point for finding the causes of the variations. The excess of $.04 per unit cost of material over the standard may be due to the fact that purchases were made in insufficient quantity to obtain the prices used in the establishment of the standard. Material may have been wasted, or it may have fallen below specifications, thus necessitating a greater quantity. The purchasing officer may have failed to buy to the best advantage. Market prices may have fluctuated. Thus, although figures alone fail to reveal causes, they do show what discrepancies must be investigated. Of course, more than one of the above factors may have caused the excess of material costs, and if this is the case, the investigation should be carried far enough to discover just where the responsibility lies. The other discrepancies between the standard and the actual costs should be similarly studied. This analysis, to be most effective, should be made item by item and department by department, for it is only by studying details that the maximum of good can be accomplished. The methods of analysis will have to be adapted to the business concerned. Standard costs as bases of comparison may be used either with specific order or with process cost systems.

COMPARISON OF ACTUAL AND STANDARD COSTS

39,000 UNITS

	Total Cost			Per Unit		
	Actual	Standard	Excess of Actual	Actual	Standard	Excess of Actual
Material	$ 38,610.00	$ 37,050.00	$1,560.00	$ .99	$ .95	$.04
Direct Labor	99,450.00	97,500.00	1,950.00	2.55	2.50	.05
Manufacturing Expense	62,400.00	63,375.00	975.00[a]	1.60	1.625	.025[a]
Totals	$200,460.00	$197,925.00	$2,535.00	$5.14	$5.075	$.065

FIGURE 54

[a] Excess of standard.

Although standard costs serve very important functions as bases for statistical comparison and investigation, it is sometimes found desirable to incorporate them in the books. One of the best of the several methods for this will be illustrated from the data in Figures 53 and 54. As materials are purchased they are debited to stores at actual cost, but as they are issued, records are kept of both the actual and the standard costs. From the material summaries at the end of the period the following entries are made:

Variation from Standard—Material	$38,610.00	
Stores		$38,610.00
To charge actual cost of stores issued to Variation from Standard.		
Material in Process	37,050.00	
Variation from Standard—Material		37,050.00
To charge Material in Process with the standard cost of the stores issued.		

It will be noted that the net result of this entry is a charge to Material in Process for the standard cost of the materials issued; the balance in the account Variation from Standard—Material will equal the difference between actual and standard cost of Material.

In like manner, when wages are accrued for direct labor they are debited to Variation from Standard—Labor at the actual amounts, and then credited out of this account into Labor in Process at standard rates, thus:

Variation from Standard—Labor	$99,450.00	
Accrued Payroll		$99,450.00
To record actual accrual of labor.		
Direct Labor in Process	97,500.00	
Variation from Standard—Labor		97,500.00
To charge Labor in Process at standard rates.		

This leaves Labor in Process charged with the standard costs, and a balance in Variations from Standard—Labor equal to the difference between the actual and the standard expenditures for labor.

A parallel set of entries is adopted for manufacturing expense. The actual expenditures and accruals are charged to Variation from Standard—Expense; this account is then credited and Manufacturing Expense in Process is debited with the standard cost, thus:

Variation from Standard—Expense	$62,400.00	
Vouchers Payable, etc.		$62,400.00
To record sundry actual manufacturing expenses as they are incurred or accrued.		
Manufacturing Expense in Process	63,375.00	
Variation from Standard—Expense		63,375.00
To charge Manufacturing Expense in Process with the standard expense.		

As goods are completed they are charged to Finished Goods and credited to the In Process accounts at standard rates, thus:

Finished Goods	$197,925.00	
Materials in Process		$37,050.00
Direct Labor in Process		97,500.00
Manufacturing Expense in Process		63,375.00
To charge Finished Goods with cost of units completed at standard rates.		

Cost of Sales is debited and Finished Goods credited at the standard costs.

It has been assumed in this illustration that all units begun were carried through to completion. In case this is not the fact, there will, of course, be balances in the In Process accounts which will be valued at standard rates. Similarly, both Cost of Sales and Finished Goods will be valued at the standard. Stores, however, will be valued at cost. There are now three ways of handling the discrepancy between the standard and the actual costs.

First, it can be assumed that over a long period, perhaps over several years, the actual costs will just about equal the standard. The Variation from Standard accounts may then be left open indefinitely, being treated as deferred expenses or incomes. However, if this is done the books and statements fail to show the actual facts for each period. If the discrepancies continue to exist and the Variation from Standard account balances grow, it will be necessary eventually to adjust them into Profit and Loss or Surplus, and either revise the standards or alter the manufacturing technic.

Second, these Variation from Standard accounts may be treated as Over- and Underapplied Manufacturing Expense, and closed into Cost of Sales once a year.[1] This method is much better than the first in that it brings the books into approximate conformity with the facts. The bad feature of this procedure is that it leaves the inventories of Finished Goods and of Work in Process valued at standard prices. While some accountants uphold this valuation of inventories, it does not reveal the exact truth and does not support the principle of making the balance sheet show the closest possible approximation of actual values.

Third, the Variation from Standard accounts may be closed annually into the In Process accounts, Finished Goods, and Cost of Sales, in proportions determined by the relative importance of these accounts. This is the most satisfactory method, but it involves calculations that may be very complicated.

Summary.—In accounting for changes in net profits, the first step is the analysis of the factors in the variation of gross profits.

If possible, the change in the physical volume of sales should be computed by direct count, by a point system, or by the use of data on the average changes in selling prices or unit costs.

When the change in physical volume of sales has been determined, these data can be used in the trading statement to appraise the relative importance of the variations in selling prices, the fluctuation of unit costs, and the change in volume of business.

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[1] See Chapter XVII.

Groups of expenses and incomes should be compared for the absolute amounts of the items, their percentages of net sales, their relations to the standard costs or the budget, and to the expenses or incomes of the base period raised or lowered proportionally to sales volume.

Such analyses are of use in enforcing the budget, in fixing responsibility for good or bad developments, in testing policies, and in suggesting where expenditures should be increased or diminished.

Economic conditions are so complicated that the results of these analyses cannot be considered as ultimately tracing their causes or even measuring the effects of the various factors influencing profits; but they do weigh roughly the relative importance of the factors considered, and are a valuable starting point for further investigation.

These methods of analyzing changes in gross profits can often be applied more profitably to departments or to separate lines of merchandise than to the business as a whole.

Comparison with carefully set standard costs may be more enlightening than comparisons with actual past or average costs. The standard costs are sometimes incorporated in the books by the use of accounts for Variation from Standard.

QUESTIONS

1. Discuss the importance of the classification of expenses into "controllable," "semi-controllable," and "fixed."
2. Discuss the relation of the budget to the analysis of expenses.
3. Many trade associations publish statistics for their members which show the sales and expenses of the average firms in different-sized communities and in different classes, in comparison to gross sales. If such data are available, would they be suitable standards in expense analysis and comparison?
4. Suppose that the cost of raw material has increased relatively to other manufacturing expenses and to total volume of production. Make a list of the factors which may have caused this comparative increase. Which of these factors are controllable, and which are not?
5. Are the methods of analyzing gross profit changes set forth in this chapter equally applicable to manufacturing and to merchandising businesses?
6. Are these methods as applicable to firms handling many lines of products or merchandise as to those handling few?
7. Show how the change in any item of expense affects the percentage or the relation of each of the other items to the total of the items in the group.
8. Why is mere mathematical analysis an insufficient test of the efficiency of management?
9. Suppose you find that the item spoiled material has increased relatively

among the costs of manufacture. How would you attempt to fix responsibility?

10. What are the relations between financial income and the physical volume of sales?
11. In discussing standard costs, it was asserted that the unit standard costs would differ for the same firm for different volumes of production. Explain.

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CHAPTER XI

THE STATEMENT OF APPLICATION OF FUNDS

Funds, their Origin and Uses.—The preceding chapter was devoted to analyses of the changes in net profits from period to period, and it is equally desirable to be able to trace the variations in the balance sheet. The comparative balance sheet is sufficient to show the changes in the individual items, but it does not relate these variations to each other. The Statement of Sources and Application of Funds has been devised to present these changes in such a way as to show what funds have been received by a business during a period and how they have been used. By funds is meant "purchasing power measured in dollars," this term thus being somewhat broader in scope than money. For example, if bonds are issued for cash, it is perfectly clear that new purchasing power is gained in the form of money or its equivalent in bank deposits; but if one issue of bonds is put out in exchange for machinery, these obligations are equally a source of purchasing power, only one step, the transfer of cash, being omitted. Similarly, if the books show a net profit, this is considered a source of funds, even though cash collections are incomplete and the funds are tied up in open accounts or notes receivable. The statement of sources and Application of Funds is designed not merely to show the relations of the changes of balance sheet items to each other, but also to answer the question, so often raised, as to what has become of the profits, of the proceeds of a bond issue, or of assets that have disappeared. It would be possible to trace the individual transactions from the books, but such detail is not necessary for a good understanding of what has happened. The statement of application of funds, therefore, deals with classes of changes rather than with specific items. For instance, it will show that so many dollars have been spent for machinery but will not specify the exact number and types purchased. This information is all that the manager or the directors will want in ordinary cases; but if they desire details, the accountant can prepare schedules to support each item of the statement.

There are five sources from which a business receives funds. These are:

1. *The investment of capital by owners or stockholders.* Thus the issue of stock for cash, for property, or for valuable services

is a source of funds; but its issue as a bonus or a dividend, since it brings no new purchasing power to the corporation, is not.

2. *The contracting of liabilities.* Borrowing from a bank on a note or from the investing public through a bond issue gives the organization purchasing power. Even the enlargement of accounts payable through credit purchases is a source of funds which is used in increasing the stock of merchandise or material.
3. *The realization of assets.* The sale of any asset, whether at a profit or a loss, supplies either cash or purchasing power in exchange for other assets. However, it is customary to group the sales of merchandise with the other nominal accounts. The collection of accounts and notes receivable supplies funds.
4. *Profits.* Sales and other incomes are sources of funds, while purchases and other expenses are uses for them. Since the detail of these nominal accounts appears on the Statement of Profit and Loss, only the net profit or loss is shown on the Statement of Application of Funds, the profit being a source, and the loss an application of funds. Extraneous profits and losses are also included under this caption.
5. *Gifts.* The occasional gifts to business organizations are sources of funds, but such items are increasingly rare.

Similarly, there are five classes of the ways in which funds are used or applied:

1. *The withdrawal of capital.* The drawings of the owners of sole proprietorships and partnerships and the dividends paid by corporations, joint stock companies, and trusts are applications of funds. Stock dividends, however, do not involve funds.
2. *The liquidation of liabilities.* Funds are used to pay debts. In making a Statement of Application of Funds, the payments of current expenses, such as wages, rent, power bills, and so forth, are not treated as funds applied to the reduction of liabilities, but are grouped with the incomes in the Statement of Profit and Loss, the net gain or loss being shown on the Statement of Application of Funds as a source or use of purchasing power. However, a reduction of such an item as accrued wages or accounts payable from one balance sheet date to the next is treated as an application of funds.
3. *The purchase of assets.* Any purchase of an asset involves an application of funds. But in making the Statement of Application of Funds the purchase of supplies, materials, and merchandise is grouped with the other nominal elements, only the net gain or loss being shown in the statement.

4. *Net losses.* If the expenses are greater than the income, funds have been dissipated.
5. *Gifts by the organization.* Sometimes rather large sums are donated to employees' credit associations, pension funds, civic enterprises, and community funds.

A Simple Statement of Application of Funds.—A great deal concerning the funds derived and their application can be learned from a comparative balance sheet like that of The Williams Creek Milling Company, Figure 55. Since this statement shows a $2,000.00 increase in the Surplus, it is evident that there has been that much profit left in the business, although the details by which the gain was made are not disclosed.

THE WILLIAMS CREEK MILLING COMPANY

COMPARATIVE BALANCE SHEET

December 31, 1930, December 31, 1931

	December 31 1930	December 31 1931	Increases	Decreases
Assets				
Cash	$ 7,000.00	$ 6,000.00		$1,000.00
Accounts Receivable	8,000.00	9,000.00	$1,000 00	
Inventories	10,000.00	6,000.00		4,000.00
Land and Building	15,000.00	15,000.00		
Milling Machinery	8,000.00	14,000.00	6,000.00	
	$48,000.00	$50,000.00	$7,000.00	$5,000.00
Net Increase				2,000.00
			$7,000.00	$7,000.00
Liabilities and Net Worth				
Notes Payable	$ 4,000.00	$ 5,000.00	$1,000.00	
Accounts Payable	8,000.00	5,000.00		$3,000.00
Mortgage Payable	6,000.00	8,000.00	2,000.00	
Capital Stock	20,000.00	20,000.00		
Surplus	10,000.00	12,000.00	2,000.00	
	$48,000.00	$50,000.00	$5,000.00	$3,000.00
				2,000.00
Net Increase			$5,000.00	$5,000.00

FIGURE 55

Funds have been provided by the increase of two liabilities, the notes payable and the mortgage payable. However, the inventories have decreased, thus releasing for other use funds previously tied up in them. The decrease of cash can be interpreted as a provision of funds from cash for other purposes. On the other hand, the reduction of the liability on open account has been an application of funds, as has the expenditure of $6,000.00 for machinery. A thousand dollars has been used to carry additional accounts receivable. From these data it is possible to prepare a statement showing how the funds were furnished and how they were used.

THE WILLIAMS CREEK MILLING COMPANY
STATEMENT OF APPLICATION OF FUNDS
December 31, 1930 to December 31, 1931

Sources of Funds			
Decreases in Assets			
Cash	$1,000.00		
Inventories	4,000.00	$5,000.00	
Increases of Liabilities			
Notes Payable	$1,000.00		
Mortgage Payable	2,000.00	3,000.00	
Profit		2,000.00	
Total			$10,000.00
Application of Funds			
Increase of Assets			
Accounts Receivable	$1,000.00		
Milling Machinery	6,000.00	$7,000.00	
Reduction of Liabilities			
Accounts Payable		3,000.00	
Total			$10,000.00

FIGURE 56

While the statement in Figure 56 shows in detail the source and use of the funds, it can be improved by condensation if the change in working capital is shown as one item. The comparison of working capital appears in Figure 57.

When the items of working capital are assembled in one schedule showing the increases and decreases of accounts, not as these changes affect the particular accounts but as they affect the working capital, it is evident that many of these changes are merely shiftings of value among the items. The important point is not the fact that there have been increases of $1,000.00 each in accounts receivable and notes payable, but that the working capital of the company is $2,000.00 less December 31, 1931, than it was a year previous. Having summarized the variations of the current items in one figure, it is possible to make a better statement of funds, Figure 58. When thus reduced to its simplest terms, the Statement of Application of Funds should invariably be accompanied by a schedule of the working capital. This enables one to grasp the essential elements of the changes and then to study the details of their effects on the current items.

THE WILLIAMS CREEK MILLING COMPANY
SCHEDULE OF WORKING CAPITAL

	December 31 1930	December 31 1931	Working Capital Increase	Working Capital Decrease
Current Assets				
Cash	$ 7,000.00	$ 6,000.00		$1,000.00
Accounts Receivable	8,000.00	9,000.00	$1,000.00	
Inventories	10,000.00	6,000.00		4,000.00
	$25,000.00	$21,000.00		
Current Liabilities				
Notes Payable	$ 4,000.00	$ 5,000.00		1,000.00
Accounts Payable	8,000.00	5,000.00	3,000.00	
	$12,000.00	$10,000.00	$4,000.00	$6,000.00
Net Decrease			2,000.00	
			$6,000.00	$6,000.00

FIGURE 57

THE WILLIAMS CREEK MILLING COMPANY
STATEMENT OF APPLICATION OF FUNDS
December 31, 1930 to December 31, 1931

Sources of Funds	
Decrease of Working Capital (per Schedule)	$2,000.00
Increase of Mortgage Payable	2,000.00
Net Profit	2,000.00
	$6,000.00
Funds Applied	
To purchase of Milling Machinery	$6,000.00

FIGURE 58

A More Involved Illustration.—In order to illustrate some of the typical problems that arise in constructing the Statement of Application of Funds, a rather extended solution is presented. Figures 59 and 60 present the Comparative Balance Sheet and the Statement of Surplus of The Maple Company. The following supplementary information is necessary to draw up a complete statement of funds:

1. $15,000.00 worth of new Mortgage Bonds were issued at par.
2. Extraordinary repairs to the building costing $3,000.00 were charged to Reserve for Depreciation of Building.

THE MAPLE COMPANY

COMPARATIVE BALANCE SHEET

December 31, 1930, December 31, 1931

	December 31 1930	December 31 1931
Assets		
Cash	$ 15,000.00	$ 17,000.00
Notes Receivable	5,000.00	3,000.00
Accounts Receivable	40,000.00	36,000.00
Inventories	26,000.00	30,000.00
Accrued Interest Receivable	1,000.00	1,000.00
Prepaid Insurance	1,000.00	1,500.00
Discount on Bonds Payable	900.00	800.00
Real Estate	26,000.00	57,000.00
Machinery	43,000.00	35,000.00
Patents	10,000.00	9,000.00
Goodwill	14,000.00	20,000.00
Sinking Fund Investments		1,600.00
Discount on Common Stock		2,000.00
	$181,900.00	$213,900.00
Liabilities, Reserves, Net Worth		
Notes Payable	$ 6,000.00	$ 7,000.00
Accounts Payable	24,000.00	22,000.00
Accrued Wages Payable	1,900.00	1,000.00
Mortgage Bonds Payable	50,000.00	65,000.00
Reserve for Bad Debts	500.00	300.00
Reserve for Depreciation of Building	8,000.00	7,000.00
Reserve for Depreciation of Machinery	10,000.00	6,000.00
Reserve for Sinking Fund		1,600.00
Common Stock	50,000.00	70,000.00
Preferred Stock	10,000.00	20,000.00
Premium on Preferred Stock		500.00
Surplus	21,500.00	13,500.00
	$181,900.00	$213,900.00

FIGURE 59

3. Machinery which originally cost $13,000.00, and on which there was a reserve for depreciation of $8,000.00, was sold for $3,000.00 cash.

Under these conditions it is impossible to make up the statement of funds directly from the comparative balance sheet. The task is much simplified by the use of a work sheet similar to Figure 61. The first two money columns of this work sheet reproduce the comparative balance sheet. The second two show the changes in the various items between the two balance sheet dates, the changes being classified as debits and credits to balance the columns and facilitate adjustments. When the adjustments have been indicated in the third pair of money columns, these various changes are transferred as adjusted to one of the last four money columns which provide for increases of working capital, decreases of working capital, funds applied, and funds provided. From these last four columns are constructed the Statement of Sources and Application of Funds and the Schedule of Working Capital and Deferred Charges as they appear in Figures 62 and 63. The use of the work sheet will be clear from the discussion of some of the more involved items.

THE MAPLE COMPANY

STATEMENT OF SURPLUS

December 31, 1930 to December 31, 1931

Balance, December 31, 1930		$21,500.00
Add:		
Increase in value of real estate per appraisal	$10,000.00	
Increase in value of goodwill per appraisal	6,000.00	16,000.00
		$37,500.00
Deduct:		
Loss on sale of machinery	$ 2,000.00	
Dividend on preferred stock	1,200.00	
Dividend on common stock	7,000.00	
Appropriation for sinking fund reserve	1,600.00	
Operating loss	12,200.00	24,000.00
Balance, December 31, 1931		$13,500.00

FIGURE 60

Working Capital and Deferred Charges.—Because, in most businesses, the typical charge to a deferred expense is an asset soon to be consumed, and because these prepayments are usually small compared to other assets, they are generally grouped with the current assets in the Statement of Sources and Application of Funds. For this reason the column headed Working Capital contains the changes in deferred assets, in addition to the current items. The distinction is, however, not entirely lost, because it is customary to show the deferred items separately as in Figure 63. Nevertheless, such a deferment as the discount on bonds payable is often treated separately for two reasons: first, because the bond discount does not closely resemble the current assets as does an inventory of supplies or a prepayment of interest or insur-

THE MAPLE COMPANY
APPLICATION OF FUNDS WORK SHEET
December 31, 1931

Item	Balance Sheets		Changes		Adjustments		Working Capital		Funds	
	Dec. 31, 1930	Dec. 31, 1931	Dr	Cr	Dr	Cr	Increase	Decrease	Applied	Provided
Cash	15,000.00	17,000.00	2,000.00				2,000.00			
Notes Receivable	5,000.00	3,000.00		2,000.00				2,000.00		
Accounts Receivable	40,000.00	36,000.00		4,000.00				4,000.00		
Inventories	26,000.00	30,000.00	4,000.00				4,000.00			
Accrued Interest Receivable	1,000.00	1,000.00								
Prepaid Insurance	1,000.00	1,500.00	500.00				500.00			
Discount on Bonds Payable	900.00	800.00		100.00	(k) 100.00					
Real Estate	26,000.00	57,000.00	31,000.00			(a) 10,000.00			21,000.00	
Machinery	43,000.00	35,000.00		8,000.00	(c) 13,000.00				5,000.00	
Patents	10,000.00	9,000.00		1,000.00	(j) 1,000.00					
Goodwill	14,000.00	20,000.00	6,000.00			(b) 6,000.00				
Sinking Fund Investments		1,600.00	1,600.00						1,600.00	
Discount on Common Stock		2,000.00	2,000.00						2,000.00	
	181,900.00	213,900.00								
Notes Payable	6,000.00	7,000.00		1,000.00				1,000.00		
Accounts Payable	24,000.00	22,000.00	2,000.00				2,000.00			
Accrued Wages Payable	1,900.00	1,000.00	900.00				900.00			
Mortgage Bonds Payable	50,000.00	65,000.00		15,000.00						15,000.00
Reserve for Bad Debts	500.00	300.00	200.00				200.00			
Reserve for Depreciation of Building	8,000.00	7,000.00	1,000.00		(h) 2,000.00	(g) 3,000.00				
Reserve for Depreciation of Machinery	10,000.00	6,000.00	4,000.00		(i) 4,000.00	(c) 8,000.00				
Reserve for Sinking Fund		1,600.00		1,600.00	(e) 1,600.00					
Common Stock	50,000.00	70,000.00		20,000.00						20,000.00
Preferred Stock	10,000.00	20,000.00		10,000.00						10,000.00
Premium on Preferred Stock		500.00		500.00						500.00
Surplus	21,500.00	13,500.00	8,000.00		(a) 10,000.00 (b) 6,000.00	(c) 2,000.00 (d) 8,200.00 (e) 1,600.00 (f) 12,200.00				
	181,900.00	213,900.00								
Funds Provided by Sale of Machinery						(c) 3,000.00				3,000.00
Funds Applied to Preferred Stock Dividend					(d) 1,200.00				1,200.00	
Funds Applied to Common Stock Dividend					(d) 7,000.00				7,000.00	
Net Loss on Operations					(f) 12,200.00				12,200.00	
Extraordinary Repairs to Building					(g) 3,000.00				3,000.00	
Charges to Profit and Loss Not Requiring Funds:										
Depreciation of Building						(h) 2,000.00				2,000.00
Depreciation of Machinery						(i) 4,000.00				4,000.00
Expiration of Patents						(j) 1,000.00				1,000.00
Amortization of Bond Discount						(k) 100.00				100.00
Increase of Working Capital								2,600.00	2,600.00	
			63,200.00	63,200.00	61,100.00	61,100.00	9,600.00	9,600.00	55,600.00	55,600.00

FIGURE 61

ance, and second, because funds are not involved in the amortization of such a discount.

The working capital columns are, therefore, made up of the current items and the deferred charges which are closely similar to current assets. Every increase in a current asset, appearing as a debit change in the second pair of money columns, tends to increase working capital; and every decrease of a current asset, appearing as a credit change, tends to decrease working capital. On the other hand, increases of current liabilities tend to decrease working capital, and decreases of current liabilities to increase it. But the increases of current liabilities, like the decreases of current assets, appear in the credit column under Changes. Likewise, the decreases of current liabilities, like the increases of current assets, appear in the debit column under Changes. Therefore all the debit changes of current items tend to increase working capital, and all the credit changes of current items tend to decrease it. This is a convenient rule of thumb, but it is based on strict logic.

It will be noticed that the reserve for bad debts is classed among the current items. This is done because this reserve is looked upon as a part of the Accounts Receivable and Notes Receivable.

If working capital has increased during the period, the amount of the increase is considered an application of the funds, and if it has decreased, the amount of the decrease is considered as funds supplied from this source. Suppose, for example, that the current items remain unchanged in amount during a period, except for the cash. If the cash has increased, so has the working capital. In this case funds drawn from elsewhere have been applied to increasing the working capital. On the other hand, if all the current assets have remained constant in amount except cash, which has decreased, current assets have been the source of funds supplied for application or use elsewhere. Therefore, the net change in working capital is carried over into the appropriate column for funds applied or provided.

Appraisals.—If an asset is appraised at more than its book value, and if the increase is recorded on the books, the comparative balance sheet seems to show an expenditure of funds for the increase of the asset and a receipt of funds by way of profit. However, no funds are involved in the change of asset values by appraisal. During the year 1930, for instance, The Maple Company recorded the results of two appraisals by crediting Surplus and debiting the asset accounts with the amounts of the changes. The entries doubtless were:

Real Estate	$10,000.00	
Surplus		$10,000.00
To record additional value of land as appraised.		

Goodwill	$6,000.00	
Surplus		$6,000.00
To record additional value of Goodwill as appraised.		

Since neither of these entries involves funds in any way, it is necessary to eliminate their effect upon the balance sheet comparison before an accurate statement of funds can be made. This is done by means of reversing entries in the adjustment columns of the work sheet. These adjustments are keyed "a" and "b" in Figure 61, but they are made only on the work sheet in connection with the preparation of the statement of funds. They are not carried on to the books of account unless they are necessary to correct actual errors. When these adjustments are considered further, it appears that the increase in value of real estate due to purchase or construction has been, not the $31,000.00 change indicated by the balance sheets, but $21,000.00, and that there has been no additional acquisition of goodwill by trade or purchase.

Sometimes the entries are somewhat more complicated. Suppose, for illustration, that a certain asset originally cost $10,000.00 and that a depreciation reserve of $4,000.00 has been built up for that item. The appraisers find that it would cost $15,000.00 to replace the asset new. But the asset is actually 40 per cent depreciated. Its appraised value is therefore $15,000.00 less the depreciation of $6,000.00. The entry to place the appraised value on the books is often made thus:

Asset	$5,000.00	
Reserve for Depreciation		$2,000.00
Capital Surplus (or Surplus)		3,000.00
To record additional value of the Asset as revealed by the appraisal made by ——, as of ——.		

The correcting adjustment on the application of funds work sheet would therefore be:

Reserve for Depreciation	$2,000.00	
Capital Surplus (or Surplus)	3,000.00	
Asset		$5,000.00

Thus, in order to make a correct statement of application of funds when asset values have been changed by appraisal, it is necessary to find out how the increased value was placed on the books, and to eliminate on the work sheet the effect of that entry.

Valuation Allowances and Amortization.—If a man engages in the business of hauling, owns one truck, pays expenses as he goes and collects in full for his services, the difference between the amounts collected and expended will represent the funds he derives as profit from his business, and these funds will be available for any use he wants to make of them. But they exceed his net profit by the amount he should allow for depreciation of his truck. To generalize, the customary and correct entries debiting a depreciation expense account and crediting an asset valuation account involve no funds. The purchasing power which a business obtains as a result of its operations is greater than the net profits by the amounts charged to expense for asset valuation, such as depreciation.

It is therefore necessary to make an adjustment on the application of funds work sheet that will show funds provided by net profits as equal to these net profits plus the allowances made during the period for depreciation. Two rather different applications of this principle are shown in preparing the statement of funds for The Maple Company. During the year 1930, machinery which cost $13,000.00 and on which a depreciation reserve of $8,000.00 had been built up, was sold for $3,000.00. The entry to record such a sale would have been:

Cash	$3,000.00	
Reserve for Depreciation of Machinery	8,000.00	
Profit and Loss	2,000.00	
Machinery		$13,000.00
To record sale of machinery having book value of $8,000.00.		

In the work sheet the adjusting entry, keyed "c," is:

Machinery	$13,000.00	
Reserve for Depreciation of Machinery		$8,000.00
Surplus		2,000.00
Funds Provided by Sale of Machinery		3,000.00

This entry has the following effects:

1. It eliminates from the machinery account the effect of the retirement of this particular equipment, thus the change in the account equals the amount of new machinery purchased.
2. It sets up an account to show the amount of actual funds realized by the sale of the machinery.
3. It restores to the Reserve for Depreciation of Machinery the amount which that account was debited when the equipment was sold, thus making it possible for that account to show a change equal to the increase made to the reserve during the period.
4. It decreases the debit change shown in Surplus by $2,000.00, for there was no loss of funds involved in the loss on the sale of the asset.

The second application is the adjustment for the extraordinary repairs to the building which were charged to the reserve for depreciation. The adjusting entry, keyed "g," debits Extraordinary Repairs to Building and credits the Reserve for Depreciation of Building, whereby the reserve account shows a change equal to the actual amount allowed for depreciation during the period and sets up a special account to indicate the manner of the application of funds.

Since, in this particular case, these are the only adjustments to the reserves for depreciation that have been made during the period, the reserve accounts as they now stand show the amounts allowed for depreciation of the building and machinery. In order that these allowances may be added to the profit or deducted from the loss, adjustments "h" and "i" are made on the work sheet.

Reserve for Depreciation of Building	$2,000.00	
Reserve for Depreciation of Machinery	4,000.00	
Charges to Profit and Loss not Requiring Funds		
Depreciation of Building		$2,000.00
Depreciation of Machinery		4,000.00

These entries eliminate the changes in the reserve accounts and carry the amounts allowed for depreciation into the section of the work sheet devoted to profit and the charges against profit and loss which do not involve funds.

The allowances for expiration of the patents and amortization of the bond discount are treated similarly, except that the adjustments, keyed "j" and "k," debit the principal account, there being no valuation reserve. All the credit adjustments under the heading Charges to Profit and Loss not Requiring Funds are carried over to the column for Funds Provided. In making the formal statement these items are either added to the profits or deducted from the loss from operations. Should there be amortization of a premium on bonds payable, it would be a deduction from profits because the net profits would be greater than the funds actually provided by the amount of this amortization.

Treatment of Profits.—The exact amount of the net profit or loss for the period can usually be learned from the statement of surplus or from the profit and loss account. Since net profit is treated as an important source of funds and net loss as an application, it is important to set apart at least one line in the work sheet for operating profits, and this is accomplished by an entry similar to the adjustment, keyed "f." It is customary in a formal statement to show the final net profit increased by the charges to profit not requiring funds, or the net loss decreased by these items, as in Figure 62.

Surplus Reserves.—When The Maple Company set aside cash for its sinking fund, it also appropriated some of the surplus for a Sinking Fund Reserve. No funds are involved in setting up such a reserve. Therefore the adjusting entry "e" is made on the work sheet to eliminate the effect of the book entry establishing the reserve. Similarly, the application of funds work sheet should contain adjustments reversing all transfers made between Surplus and any true reserves during the period.

Dividends.—If dividends were declared during the period and charged to Surplus, there should be an entry on the work sheet crediting Surplus with this amount. If they were paid, the debit of the adjustment would be to a special line on the work sheet showing this particular application of funds. If the dividends were not paid but are standing as a liability, the most logical debit would be to Dividends Payable because the funds have not as yet been spent. However, some accountants prefer to debit Dividends Paid, leaving Dividends Payable among the working capital items.

THE MAPLE COMPANY

Statement of Sources and Application of Funds

December 31, 1930 to December 31, 1931

Funds Provided:			
By Issue of Bonds at par			$15,000.00
By Issue of Preferred Stock			
Par Value		$10,000.00	
Premium		500.00	10,500.00
By Issue of Common Stock			
Par Value		$20,000.00	
Discount		2,000.00	18,000.00
By Sale of Machinery			3,000.00
			$46,500.00
Funds Applied:			
To Establishment of Sinking Fund			$ 1,600.00
To Expenditures on Fixed Assets			
Purchase of Real Estate		$21,000.00	
Purchase of Machinery		5,000.00	
Extraordinary Repairs to Building		3,000.00	29,000.00
To Payment of Dividends			
On Preferred Stock		$ 1,200.00	
On Common Stock		7,000.00	8,200.00
To Increase of Working Capital and Deferred Charges (per Schedule)			2,600.00
To Loss on Operations[a]			
Net Loss per Profit and Loss Statement		$12,200.00	
Less Charges to Profit and Loss not Requiring Funds			
Depreciation of Building	$2,000.00		
Depreciation of Machinery	4,000.00		
Expiration of Patents	1,000.00		
Amortization of Bond Discount	100.00	7,100.00	5,100.00
			$46,500.00

Figure 62

[a] A profit would be shown among the Funds Provided.

Since stock dividends use no funds, the adjustment for such a dividend will debit the appropriate capital stock account and credit Surplus.

THE MAPLE COMPANY

Schedule of Working Capital and Deferred Charges

	December 31, 1930	December 31, 1931	Working Capital Increase	Working Capital Decrease
Current Assets				
Cash	$15,000.00	$17,000.00	$2,000.00	
Notes Receivable	5,000.00	3,000.00		$2,000.00
Accounts Receivable	40,000.00	36,000.00		4,000.00
Inventories	26,000.00	30,000.00	4,000.00	
Accrued Interest Receivable	1,000.00	1,000.00		
	$87,000.00	$87,000.00		
Current Liabilities				
Notes Payable	$ 6,000.00	$ 7,000.00		$1,000.00
Accounts Payable	24,000.00	22,000.00	2,000.00	
Accrued Wages Payable	1,900.00	1,000.00	900.00	
Reserve for Bad Debts	500.00	300.00	200.00	
	$32,400.00	$30,300.00	$9,100.00	$7,000.00
Working Capital	$54,600.00	$56,700.00		
Increase of Working Capital				2,100.00
			$9,100.00	$9,100.00
Deferred Charges				
Prepaid Insurance	$ 1,000.00	$ 1,500.00	$ 500.00	
Summary				
Increase of Working Capital			$2,100.00	
Increase of Deferred Charges			500.00	
Increase of Working Capital and Deferred Charges			$2,600.00	

Figure 63

Likewise, dividends paid in scrip or in assets other than cash involve no funds, and in this case the work sheet should show an adjustment debiting the appropriate asset or scrip account and crediting Surplus for the amount of the dividend.

Sale of Securities.—If stocks or bonds are issued at a discount, the discount is not treated in the final statement as a separate application of funds, although it is so classed in the work sheet. In the statement of funds it is exhibited as a deduction from the funds provided by the issue of the stocks or bonds. Similarly, a premium realized is added to the par of the securities issued to show the total funds provided. The handling of both discounts and premiums is illustrated in Figure 62, for the common stock was sold at less than par and the preferred stock at more.

Technic of the Work Sheet.—The work sheet for the preparation of the application of funds statement should be designed to simplify the labor, to accommodate all necessary adjustments, and to make errors difficult. The comparative balance sheet, shown in the first two money columns, can be verified, either by calling back the items or adding to test the totals of the debits and credits for each statement. A test of the accuracy of the changes columns is the equality of their totals. It is further possible to add these changes columns down as far as the line on which appear the totals of the assets in the comparative balance sheet. The difference between the debit and credit changes down as far as the line of the asset totals should equal the difference between the totals of the assets at the two balance sheet dates. For example, in Figure 61, the total assets December 31, 1929, were $181,900.00, while the total a year later was $213,900.00, an increase of $32,000.00. The total of the debit Changes column down to the line showing the Total Assets is $47,100.00, and the total of the credit Changes column to the same line is $15,100.00, a difference of $32,000.00. It is well to test the accuracy of the work by these checks. Of course, the totals of the debit and credit adjustment columns should be equal.

There is no mechanical device to assure against omissions or mistakes of theory. The adjustments, however, should eliminate all changes in Surplus and in valuation reserves (except reserve for bad debts), all changes due to amortization and to direct crediting of asset accounts for depreciation or expiration. Such adjustments should be made as will make clear the details of funds applied and provided. All changes not involving funds should be eliminated by adjustments which usually affect Surplus or "Charges to Profit and Loss." Payments of dividends should be indicated clearly.

Changes in current asset and current liability accounts, as adjusted, are transferred to the Working Capital columns, debit changes going to the Increase column and credit changes to the Decrease column.

Changes in items other than current assets and current liabilities, as adjusted, are carried to the Funds columns, debit changes going to the Funds Applied column and credit changes to the Funds Provided column.

In making the formal Statement of Sources and Application of Funds, all the data can be obtained from the two Funds columns of

the work sheet, but these data should be arranged very carefully and logically.

Summary.—The Statement of Sources and Application of Funds is a comparatively recent development. Its purpose is to show what purchasing power has been made available during a period, and how that purchasing power has been used. The statement is a valuable supplement to the Income Statement and the Balance Sheets in tracing the changes in status of a business, and it is now regularly prepared by accountants, along with other statements, for many business organizations at the close of each period. The Statement of Application of Funds should always be supplemented by a Schedule of Changes in Working Capital and Deferred Assets.

QUESTIONS

1. Distinguish between money, cash, and funds (as funds is used in this chapter).
2. In the first section of this chapter are listed five classes of sources of funds and five classes of applications of funds. Can you think of any additions for either list?
3. Why are deferred assets classed with working capital in the preparation of statements of sources and applications of funds? What deferred assets are not so classified? Why?
4. Prove the statement that all credit changes in items other than current assets or liabilities should be classed on the work sheet as funds provided (assuming that all necessary adjustments have been made).
5. Suppose that extraordinary repairs to some asset have been charged to the reserve for depreciation. What methods of adjusting can be used on the work sheet, and how can this be shown in the statement of sources and application of funds?
6. During the period under consideration there was an exceedingly large increase in notes payable. In making the statement of funds it is proposed to show this item separately as a source of funds, rather than "to bury it in the Schedule of Working Capital." What do you think of the proposal? Does the use to which the borrowed money was put influence your opinion?
7. During the period under consideration the discount on capital stock was written off against surplus. What adjustment should be made on the application of funds work sheet?
8. It is said that writing down the value of assets because of depreciation can never provide funds, and that it is therefore incorrect to consider allowances for depreciation as sources of funds, along with net profits. Is this argument true? How does it affect the treatment of valuation allowances in this chapter?
9. Devise an alternative to Figure 63 as a schedule of changes in working capital and deferred charges.

10. Why is an analysis of surplus necessary in order to prepare a statement of sources and application of funds?

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CHAPTER XII

CONSIGNMENTS

The Nature of Consignments.—The first ten chapters of this book have dealt with the problems of making statements correct as to form and content, interpreting the changes in these statements from period to period, and planning ahead the policy of the business. This and the succeeding chapters will be devoted to a consideration of the accounting for peculiar types of transactions and situations. Of course, it would be impracticable to attempt to describe the special applications of accounting to each line of business, so it has been deemed appropriate to select topics of rather general interest and importance.

The first of these special subjects, Consignments, has been chosen because, at one time or other, nearly every retail merchant accepts some goods on consignment, and because there is a large group of "commission men" whose entire business is selling for others. The peculiarity of the consignment is that the person who sells the goods never owns them. He is a "factor," that is, an agent who holds the property of his principal for sale, markets it, gives good title to the purchaser, collects the price, and finally remits the net proceeds to the principal. Since the factor or "consignee" is an agent, his relations to his principal, the "consignor," and to the public are governed by the law of agency. The consignee is under obligation not to "mix" his principal's goods with his own or those of any other consignor. This physical separation of goods may be achieved by the use of a lot number placed upon each article or package by a pasted label, tag, ticket, or stencil. Moreover, the consignee is responsible for giving his principal's goods as adequate care and protection as a prudent man would give to his own similar property. This does not make the factor an insurer against risks beyond his control, but it does give him the right to insure the merchandise at the consignor's expense, for a wise man carries insurance against the hazards to which his property is exposed. A third duty of the factor is to sell the consigned merchandise at the best price obtainable with the exercise of due diligence, or at the price and on the terms ordered by the consignor. If, however, the consignor has merely set a minimum price, the consignee may not sell below that figure. Fourth, the consignee must use discretion in extending credit on the sales of the consigned merchandise, and reasonable diligence in attempting to collect from credit customers. Provided such care has been exercised, the consignee is not responsible for the unpaid bills of those to whom he has sold consigned merchandise. But if a factor should pledge the accounts of his consignment customers or discount their notes for his own benefit, he becomes responsible to the principal for their obligations. However, some consignees, including most of those who handle farm produce on commission, either by specific contract or the custom of the trade are absolutely responsible to their consignors for the credit of their customers. When the factor is thus an insurer of the collection of his sales, he is an "agent del credere." Fifth, whatever money has been collected by the consignee from consignment customers belongs to the particular consignors for whose merchandise the funds have been received, except what is due the factor for commissions and for outlays on behalf of the principal. Therefore the consignee must not mix his own funds with those of his consignors. In the case of an agent del credere this mixing of funds is often practiced even though it is not strictly proper. A sixth important duty of the consignee is to deal with his principal in absolute good faith. Connected with this is the factor's obligation to render an account to the consignor, and the privilege vested in the consignor by the law of most jurisdictions of inspecting the agent's books in order to verify the report.

In order that he may perform these obligations to his principal, the consignee is granted certain privileges. In the first place, he is given a lien upon the principal's goods or money remaining in his possession for his commission and for the reimbursement of expenses made on behalf of the consignor or advances to him. But in many states this lien protects only the expenditures on goods still in the possession of the consignee. In many lines of business the types of expenses which the factor may incur and the rate of commission he may charge are fixed by trade custom. Second, the consignee may bind his principal by warranting the merchandise, provided such warrant has been authorized by the consignor or provided trade practice in the locality requires such warrants. But neither authorization by the principal nor trade practice releases the consignee from liability on a warrant he has made. Third, in the absence of definite instructions from the principal, and within the bounds of good practice in the trade, the consignee is granted considerable discretion in dealing in merchandise.

There are several reasons for doing business on consignment. The most important one is, perhaps, the inability of farmers to attend to both the raising of crops and stock and the marketing of their produce. Hence they ship to commission men who act as their representatives in the cities. Another use of the consignment is to relieve the retailer from the risk of buying merchandise which he hesitates to handle as a principal. Thus manufacturers may resort to consignment shipments to introduce their products into new communities. Again, the consignment relation may protect the manufacturer or jobber against the credit risk involved in outright sale to the retailer, for such a shipment, although in the dealer's possession, is not his property, and therefore, if he becomes insolvent, the owner can reclaim his goods, instead of being forced to take a pro rata of his claim along with the other general creditors. Moreover, the consignee's obligation to keep separate the funds collected on the sales of consigned goods, protects the consignor against these losses if he draws his contract properly. In addition, the uncollected accounts are his; but cash is not subject to the prior claim of the consignor if it has been mingled with the cash of the consignee. A fourth use of the consignment is in the control of retail prices, the consignor having the right to set the price since he retains title to the goods and since the consignee acts as his agent in selling the property.

Accounting for the Occasional Consignment In.—A retailer or jobber who occasionally accepts goods on consignment has no need for elaborate records, but his accounts should show the exact situation at all times. There are two usual methods of accounting for the occasional consignment in, the first of which is as follows:

1. Upon arrival of the shipment or of the "advice of consignment":

Consignments In (or Consignment Account)	xxxx	
Consignments Received (or Consignors' Goods)		xxxx

This is a memorandum entry setting up the transaction either at the minimum price for sale set by the consignor or at an estimated value. There is as yet no liability on the part of the consignee, and no asset.

2. On incurring an expense in connection with the consignment:

Consignment In, Blank Company	xxxx	
Cash (or other appropriate account)		xxxx

To charge the consignor with expenses incurred in his behalf. A ledger page headed "Consignment In, Blank Company" should have been prepared on receipt of the goods. On this page there should have been written a memorandum of the nature and quantity of the goods.

3. On the sale of consigned goods:

Cash (or Account Receivable)	xxxx	
Consignment In, Blank Company		xxxx

To credit Blank Company, Consignor, with the amount of the sale of consigned goods. This is the correct entry for a cash sale or for a sale on account by a del credere consignee.

or

Account Receivable, Consignment	xxxx	
Deferred Credit to Consignments In		xxxx

To record sale of consigned goods on account. This entry is correct if the consignee is not working on a del credere contract, for he has no liability to the consignor until he has made collection.

4. On collection from the customer who bought consigned goods from an ordinary consignee:

Cash	xxxx	
Account Receivable, Consignment		xxxx

To record the collection of the account with a customer who purchased consigned merchandise. Technically there should be a separate cash account, but it is seldom kept.

Deferred Credit to Consignments In	xxxx	
Consignment In, Blank Company		xxxx

To credit Blank Company, Consignor, with the cash collected in their behalf.

5. To take up commission on consignment sales:

Consignment In, Blank Company	xxxx	
Commissions Earned		xxxx

To record commissions earned on consignment sales.

6. On settlement with the consignor:

Consignment In, Blank Company	xxxx	
Cash		xxxx

To record settlement with Blank Company, Consignor.

Consignments Received (or Consignors' Goods)	xxxx	
Consignments In (or Consignment Account)		xxxx

To reverse initial memorandum entry.

This set of entries accurately and completely tells the story of the consignment in, except that the cash received on consignment sales has not been segregated in a separate account as it should be to satisfy the technical rule that collections made by a factor for his principal belong to that principal. A special account for Consignors' Cash can be opened, charged with all the cash collected on consignment sales, and credited with the remittances to the consignor and the amount due the consignee for expenses and commissions. The use of the account Deferred Credits to Consignments In is designed to prevent payment to any consignor before the cash for his merchandise has been collected.

The second method of accounting for occasional consignments in ignores the technicalities growing out of the peculiar nature of the agency relationship. The entries would be as follows:

1. On receipt of the shipment: no entry in the financial books. It is usual, however, to open the account, Consignment In, Blank Company, with a memorandum of the nature and quantity of the goods received.

2. On incurring an expense in behalf of the consignor:

Consignment In, Blank Company	xxxx	
Cash (or other appropriate account)		xxxx

3. On sale of consigned goods:

Cash (or Account Receivable)	xxxx	
Consignment In, Blank Company		xxxx

The credit is made regardless of whether the contract is del credere or not.

4. To take up commission:

Consignment In, Blank Company	xxxx	
Commissions Earned		xxxx

5. On remitting cash in settlement:

Consignment In, Blank Company	xxxx	
Cash		xxxx

This second method is simpler than the first, but less accurate. In order to prevent a cash remittance in excess of collections, when credit sales are made the consignor's account should be annotated accordingly, and this notation will serve as a signal to withhold settlement until the money is in hand.

ACCOUNT SALES

from THE CAPITAL CITY PLUMBERS, INC.,

Indianapolis, Indiana

May 6, 1931

To: The Puro Manufacturing Company,
Rockford, Illinois.

For 10 Puro-X water softeners, to be sold for their risk and account.
Received April 1, 1931.

		Sales		
1931				
April	7	2 @ $90.00	$180.00	
	13	3 @ 90.00	270.00	
	24	3 @ 90.00	270.00	
May	6	2 @ 90.00	180.00	$900.00
		Charges		
April	1	Freight and Drayage	$ 27.50	
	3	Repairs to damaged unit	7.50	
May	6	Commission, 20% of $900.00	180.00	215.00
		Net proceeds, by check		$685.00
		E. & O. E.		

FIGURE 64

When the entire consignment has been sold, the consignee sends the principal a report of the completed transaction, called an "Account Sales," and this should be accompanied by a check in full settlement.

However, it is sometimes desirable to render an interim account sales before the whole shipment has been disposed of. Funds are sometimes sent to the consignor at intervals, or even advanced before any sales have been made. Although there is no prescribed form for the account sales, Figure 64 is a satisfactory type for most needs. The abbreviation, E. & O. E. means "Errors and omissions excepted."

Whenever the books are to be closed and statements made, the accounts with consignors should be brought up to date, debited with all charges and commissions earned by the factor, and credited with the sales or collections made. The accounts with consignors showing credit balances are liabilities and those showing debit balances are assets, and these assets and liabilities should be presented in the appropriate current sections of the balance sheet. Care should be taken to exhibit the cash and the customers' accounts, which really belong to the consignors, under appropriate headings in the balance sheet, and consigned merchandise in stock should be rigorously excluded from the inventories.

Accounting for Consignments Out.—There are two principal methods of accounting for consignments out, the choice depending on whether it is desired to segregate the profits and losses on consignment sales or to merge them with the other accounts. In either case it should be remembered that a consignment out does not constitute a sale, for the sale is made only when the merchandise is turned over to an actual purchaser who has to make payment. If the consignment profits are to be separated from other revenues, the entries would be as follows:

1. On making the shipment:

Consignment Out #—, X Company	xxxx	
Purchases (or Inventory of Finished Goods)		xxxx

To record consignment out to X Company at cost. Since the goods have not been sold, valuation above cost would be inflation. The consignment out account is an asset account, but so far it is part of the inventory.

2. On incurring an expense in connection with the shipment:

Consignment Out, #—, X Company	xxxx	
Cash (or appropriate expense account)		xxxx

To charge to the consignment out account the cost of ——in connection with the shipment. It should be noted that the consignment account is still an inventory account, but that it now includes an element of deferred expense.

3. On receipt of the account sales the entry may be gross or net. If the gross proceeds are to be taken up, the entry will be:

Cash (or account of consignee)	xxxx	
Consignment Out #—, X Company	xxxx	
Consignment Out #—, X Company		xxxx

To record results of consignment out to X Company as follows;

Sales		xxxx
Less: Commission	xxxx	
Drayage	xxxx	
Other expense	xxxx	xxxx
Cash remitted		xxxx

The explanation gives the items of the Account Sales, and these items are recorded in the consignment out account. The credit to Consignment Out — is the amount of the sales; the debit is the amount of commission, expenses, and other deductions by the consignee.

If only the net proceeds are to be placed upon the consignor's books the entry will be:

Cash (or account of consignee)	xxxx	
Consignment Out #—, X Company		xxxx

To record the remittance in settlement of consignment to X Company.

4. To add the consignment profit to the other elements of profit:

Consignment Out #—, X Company	xxxx	
Profit and Loss on Consignments		xxxx

To close Consignment Out #— into Profit and Loss on Consignments. In case of loss on the consignment the debit and credit are reversed.

Of course these generalized entries may not fit exactly into a particular set of books. The third entry, for example, can hardly be placed in the cash receipts journal. It may be divided, the amount of cash received being entered in the record of cash receipts and credited to the consignment account, while the rest of the entry is placed in the general journal. Or the whole of this third entry may be placed in the general journal, except that a personal account with the consignee may be debited instead of Cash; this personal account may then be credited through the record of cash received.

If the consignor has to close his books before a shipment has been completely disposed of, he should show in his balance sheet, as part of the inventory, the merchandise on consignment, plus legitimate deferred charges, thus:

Inventories			
Merchandise on Hand			xxxx
Merchandise out on Consignment			
Cost	xxxx		
Deferred Charges	xxxx	xxxx	
Total Inventories			xxxx

Balances actually due from consignees for sales, or due through them from their consignment customers, should be included as Other Current Assets because they are not accounts with trade debtors. In order to adjust the books to show the exact status of those consignments which are still in process of completion, an entry must be framed to transfer from the Consignment Out account to the Consignment Profit and Loss account the prorated profit or loss on the transactions so far carried out. Although this entry is simple in principle, it involves discrimination between those consignment expenses which can be deferred proportionately to the units unsold, and those which must be attributed entirely to the items that have actually passed into the purchasers' hands.

This entry may be illustrated as follows: On April 1 the Puro Manufacturing Company shipped 10 Puro X water softeners on consignment to the Capital City Plumbers, Inc. These softeners cost $50.00 each to manufacture, and packing and shipping expense was $23.00. The following entries were made on the books of the Puro Manufacturing Company April 1:

Consignment Out #1, Capital City Plumbers, Inc.	$500.00	
Inventory of Finished Stock		$500.00
To record shipment on consignment of 10 Puro X water softeners at a cost of $50.00 each.		
Consignment Out #1, Capital City Plumbers, Inc.	23.00	
Cash		23.00
To record cost of packing and shipping consignment of 10 Puro X water softeners.		

Since the books are to be closed as of April 30, the Puro Manufacturing Company asks the Capital City Plumbers, Inc., for an interim account sales, and learns that the consignee has sold 8 of the softeners at $90.00 each, against which there stand charges for commissions $144.00, for freight and drayage $27.50, and for repairs $7.50. Therefore the following entry is made as of April 30:

Consignment Out #1, Capital City Plumbers, Inc.			$179.00	
Capital City Plumbers, Inc.			541.00	
Consignment Out #1, Capital City Plumbers, Inc.				$720.00
To set up liability of Capital City Plumbers, Inc., for sale of 8 Puro X softeners consigned to them.				
Sales 8 @ $90.00		$720.00		
Less: Freight & Drayage	$ 27.50			
Repairs	7.50			
Commissions	144.00	179.00		
Net due		$541.00		

This entry sets up as an asset the amount due from the consignee, and clears the Consignment Out account of the sum that has now become

a definite obligation of the consignee. It is thereupon necessary to adjust the Consignment Out account to inventory value, transferring the gain or loss to the appropriate nominal account, and this is accomplished by the following entry:

Consignment Out #1, Capital City Plumbers, Inc.			$129.60	
Profit and Loss on Consignments				$129.60
To close into Profit and Loss on Consignments profit on 8 softeners sold as follows:				
Sales 8 @ $90.00		$720.00		
Less Commission		144.00		
Sales net of commission		$576.00		
Less Expenses:				
Cost of 10 Softeners	$500.00			
Freight and drayage	27.50			
Repairs	7.50			
Packing and shipping	23.00			
Total cost of 10 units	$558.00			
Less 2/10 for 2 on hand	111.60			
Cost of 8 units sold		446.40		
Profit		$129.60		

When this entry has been posted, the consignment account will appear as in Figure 65; it will show a debit balance of $111.60, the inventory value of the two softeners still on consignment at manufacturing cost plus 2/10 of all the expenses of the consignment as a whole, the commissions being attributable in total to the units sold.

Consignment Out #1, Capital City Plumbers, Inc.

1931 April 1	10 Puro X @ 50.00	500.00	1931 April 30	Sales 8 @ 90.00	720.00
	Packing and shipping	23.00		Balance	111.60
30	Commissions	144.00			
	Freight & drayage	27.50			
	Repairs	7.50			
	To Profit & Loss	129.60			
		831.60			831.60
30	Balance, 2 units	111.60			

Figure 65

Thus, if the books are to be closed while a consignment is outstanding, an interim report should be secured, and the consignment account should be adjusted to show the sales and the complete charges; a contra entry should charge the consignee's personal account for the net amount due from him. A second adjustment should take up the profit or loss, computed on the theory that the general expenses of the consignment are to be prorated over all the units, and that the commissions are to be considered as having been incurred on account of the units sold. These adjustments transfer the correct profit to an appropriate nominal account, set up the liability of the consignee in a personal account, and leave in the consignment account a balance equal to the inventory value of the consigned merchandise at cost.

Alternative Methods of Accounting for Consignments Out.—There are several other methods of making the entries accounting for consignments out. The one most frequently found, except for that just described, is as follows:

1. On making the shipment:

Consignments Out, #1, X Company	xxxx	
Consignment Sales		xxxx

To record shipment of —— on consignment to X Company. This is a memorandum entry only and will be reversed at the conclusion of the consignment. The goods may be priced at cost, at selling prices, or at an arbitrary amount.

2. On paying expenses incurred in connection with the consignment:

Packing Freight Out Insurance (or other appropriate expense accounts)	xxxx xxxx xxxx	
Cash		xxxx

To record expenses in connection with consignment out to X Company. It should be noticed that the expenses are merged with the general expenses.

3. On receipt of the account sales the entry may be net or gross. The entry for the net amounts would be:

Cash (or personal account of the consignee)	xxxx	
Sales		xxxx

To record sales of consigned goods by X Company net of all expenses incurred by them including their commission.

The entry to take up the gross sales and expenses would be:

Cash (or personal account of the consignee)	xxxx	
Commissions Paid	xxxx	
Transportation Out	xxxx	
Repairs (or other expenses incurred by consignee)	xxxx	
Sales		xxxx

To record sales of consigned goods by X Company, consignee, commission, and expenses borne by X Company.

4. To reverse memorandum entry made at time of shipment:

Consignment Sales	xxxx	
Consignment Out #1, X Company		xxxx

To reverse entry made on shipment of —— on consignment to X Company.

If this method of accounting for consignments out is used, both the sales and the expenses are merged with the other sales and expenses in such a way that there is no record of the gain or loss either on an individual consignment or on all of the consignments. The memorandum entry made at the time of shipment is useful in placing the fact of the consignment on the books. In making this memorandum entry, "Consignments" rather than Consignment Sales is sometimes credited in order to avoid any implication that a sale has been effected. Should the books be closed while a consignment transaction is still incomplete, an interim account sales should be called for. An entry in the form of number 3 above should be made on the basis of the reported sales and of the entire amount of the reported expenses. If desired, an entry like number 4 above can be made to reverse that part of the opening memorandum entry corresponding to the proportion of the goods sold.

In making the inventory adjustment prior to closing, it must be borne in mind that the unsold goods out on consignment are a part of the inventory, and they should be valued at cost plus a proportionate share of the expenses incurred in connection with the shipment, except the commissions which have been earned by the factor. The form of the entry to set up the inventory would be as follows:

Inventory of Goods on Consignment	xxxx	
Purchases		xxxx
Packing and Shipping		xxxx
Transportation Out		xxxx
Insurance		xxxx

To set up inventory of goods on consignment at cost, including a part of the expenses incurred in connection with the consignments, proportional to the unsold consigned goods.

It should be noted that such an entry should defer only such expenses in connection with the consignment as have been taken up on the consignor's books. Thus, if the account sales has been entered net, the only expenses which may be deferred are those paid out by the shipper. Moreover, expenses incurred specifically on goods already sold should not be deferred.

Either of these methods of accounting for consignments out is adequate, and that one should be adopted which best suits the needs of the business. The first should be used whenever there is a chance of its being necessary to distinguish between the income derived from consignments and that from sales made in the ordinary way. Entry of the data in the account sales gross is usually better than entry net because the former gives more information which may be useful in analyzing incomes.

Accounts of Commission Men.—Those who make a business of receiving goods on consignment and selling them to the trade are known as "commission men," because their main source of income is their commissions on such transactions. However, some commission men buy and sell on their own account as well as for consignors, and it is therefore absolutely necessary for them to preserve the identity of each lot of produce received on consignment. This may be accomplished by assigning to each lot or shipment a consignment number which is pasted or stencilled on every box or package in the lot; and the account which is opened for each consignment is designated by this number. Since the numbers on the packages sold are noted on the sales slips and posted to the customers' accounts, it is possible to follow through the disposition of each consignment and the final collection from the purchaser.

Since, in many instances, collections from customers really belong to consignors, two cash accounts, one for Consignor's Cash and the other for Regular Cash, should be kept. Moreover, if the commission man trades on his own account as well as for his consignors, he should separate his Regular Sales from his Consignment Sales and distinguish carefully on the customers' accounts the debits and credits which are regular from those arising out of consignments. The reason for such detailed recording is found in the legal principle that a factor should not mix his own goods or money with the goods or money of his principals. If all cash collected on behalf of the shippers is placed in a special bank account, there can be no confusion of money. Should the commission man become bankrupt, the Consignors' Cash, properly adjusted, would belong wholly to the consignors and would thus not be available for distribution to his general creditors. Since each consignment has been accounted for by number at each transaction, including sales and collections, it should be possible for the trustee in bankruptcy to distinguish easily those goods on hand and those amounts owing by customers which are the property of the consignors. In practice, however, it is extremely difficult for the consignor to establish his rights either to funds or to specific goods.

Summary.—A consignment is a transaction whereby one party places goods in the hands of an agent for sale for the owner's benefit, the agent having the power to confer good title to the merchandise.

The consignment is used by farmers who can sell their produce to better advantage through commission men than through their own efforts, by manufacturers who wish to open up new markets or to control retail prices, and by manufacturers and wholesalers in order to avoid the risk of outright sale to retailers of doubtful credit.

Since the title to the consigned goods is vested in the principal until their sale by the consignee, or factor, the latter is under obligation to keep separate the goods in the consignment, to care for it with the diligence that would be exercised by a prudent man in protecting his own property, to sell on credit only to persons of high rating, to keep separate the cash collected from purchasers of the consigned goods, to render an accounting to the consignor, and otherwise to act in a relation of trust to his principal.

Similarly, the consignee is protected by having the right, in certain circumstances, to bind his principal to a warrant of the consigned goods, by being entitled to reimbursement for his expenditures made on behalf of his principal, and also to a commission on his sales, and by being given a lien for such charges against any property of the consignor remaining in his possession.

It is customary for the consignee to render his principal an account sales, accompanied by a check in full settlement, as soon as the consignment has been completely disposed of; but interim account sales may be rendered and partial settlements made, or the factor may advance funds to his principal. If the consignee is an agent del credere, he assumes responsibility for collections from the purchasers of consigned goods; otherwise he makes remittances only as he collects, unless he makes advances.

The occasional consignor may keep accounts so as to show separately the gain or loss on each shipment, or he may mingle the consignment transactions with his ordinary sales. In either case his entries may be gross, including all the consignee's expenditures, and the full sales price, or net, comprising only the amounts due from the factor.

The occasional consignor, in closing his books, may count the merchandise on consignment at cost plus prorated expenses, but he should never consider such goods sold until they are so reported by his agent.

The books of the occasional consignee should be kept so as to show exactly what expenses have been incurred on each consignment, what returns have been realized, and what is due the shipper after deducting expenses and commission.

The commission merchant must have a carefully elaborated accounting system in order to record accurately and promptly each transaction affecting his shippers.

QUESTIONS

1. Distinguish carefully between a consignment and a sale from the consignor's point of view and from that of the consignee.
2. Explain why the consignee has been given each of his rights against the principal.

3. Laws have been passed in many states to regulate the business of commission merchants and in particular to fix their rates of commission. Why should this be necessary?
4. Why should the commission man be an agent del credere?
5. What are the relative advantages of separating profits on consignments from those on other operations and of fusing the results of consignments with the other nominal accounts?
6. Discuss the valuation of goods out on consignment for inventory purposes, and the methods of showing this valuation on the books.
7. How would you show in the statements (a) the memorandum entries made by a consignor when he ships the goods, (b) the memorandum entries made by the consignee when he receives the shipment?
8. A retail merchant has received merchandise on consignment, some of which he has sold, but he is acting as an ordinary factor in respect to this shipment. In his statements how should he show (a) the unsold goods in his possession, (b) the accounts of the customers who have purchased consigned goods but have not yet paid for them, and (c) his relation to the principal or shipper?
9. In auditing the books of a manufacturer of machinery you find that machinery is frequently shipped to dealers on consignment. These dealers make deposits of 50 per cent of the value of the machinery so consigned, value being 20 per cent above cost of manufacture. In addition, each dealer has made a deposit of $1,000.00 with the manufacturer, which is to be forfeited if the dealer makes sales below the prices listed by the manufacturer, which are 30 per cent of cost to manufacture beyond the value at which the machinery is consigned. Thus if a machine costs $1,000.00 to make, it is consigned at a value of $1,200.00, the list price is $1,500.00, and the dealer deposits $600.00. The difference between the list price and consignment value is the dealer's "commission." How would you handle these transactions on the manufacturer's books?
10. How should the transactions enumerated in question 9 be entered on the dealer's books?

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CHAPTER XIII

JOINT VENTURES AND CONTRACTS

The Nature of the Joint Venture.—Centuries ago merchants used to combine forces by chartering a vessel in common, filling it with a cargo from their several stocks, placing a "supercargo" in charge to manage the merchandising, and sending forth the laden ship for a voyage. It might go from port to port selling and buying, and eventually return with money and with goods to be sold in the home country. This method of doing business is the traditional joint venture. It has its counterpart in the commercial life of today—usually an undertaking outside the regular routine business, having a considerable element of speculation, and involving two or more business units as principals. Thus the joint venture is a form of special partnership, usually of brief duration and seldom enlisting all of the resources of the firms concerned, but involving a sharing of profits, expenses, and losses. It still has a place in foreign trade, but a wider use in local business, sometimes taking the form of speculative pools. One of the commonest forms of joint venture on a large scale is the syndicate formed for marketing an issue of corporate securities or for underwriting their sale. The number of participants in such syndicates may run into dozens and even scores. However, in forming a modern underwriting syndicate, the participants agree that they are not partners, although they operate like a special partnership and the managing member receives special commissions on the business done.

Whether one of the principals in a joint venture acts as the manager or whether an outside agent is engaged, depends mainly on geography. If the market for the goods is situated near the participants, one of them usually acts as manager; but if it is at any distance away—either at home or abroad—the merchandise is usually consigned to some agent or merchant near the market. Commissions are usually paid to the agent regardless of whether he is an outsider or a participant acting as manager.

Complete Books for the Joint Venture.—If a joint venture is to be long continued or is somewhat intricate in nature, a full set of books may be opened, which the manager will keep. The opening entries will debit assets and credit the personal accounts of the several participants with the value of their respective contributions. Profits are credited to these personal accounts, which are essentially capital accounts, and losses are debited to them through a profit and loss account after the books have been regularly closed. Withdrawals of investment are also charged to these personal accounts.

Each participant opens an account called Joint Venture with——, which he debits with his original contribution and with all subsequent investments including all expenses paid for the venture. He also credits this account with his withdrawals. If the manager closes the books and reports a profit, the participant debits Joint Venture with——for his own share of the profit, and credits Profit and Loss on Joint Venture. When the joint venture is closed, each participant withdraws his investment as it appears after writing up his share of profits and losses, debiting cash or other asset accounts and crediting Joint Venture with——. Thus the Joint Venture account is treated very much like an investment in corporate stock when profits are taken on the books as they are reported.

Joint ventures, however, are seldom so elaborate or so long continued as to warrant a separate set of books, and for this reason the typical accounting proceeds along entirely different lines.

Accounting for the Joint Venture on the General Books.—The more ordinary system of accounting for this type of enterprise requires that each participant open an account called Joint Venture with——, and also a personal account with each co-participant. All the joint venture transactions can be handled on these accounts and on those normally found on a merchant's books. The entries will be illustrated by a problem, and some of the general principles will then be stated.

"Two merchants, C. F. Munton and W. A. Spencer, agree to share equally in a joint adventure in trade to the West Indies. They purchase and ship on a chartered vessel materials which cost them $197.00 and for which Munton gives his check."[1] The entries for the first transaction will be:

I (a) on Munton's Books:

Joint Venture with W. A. Spencer	$197.00	
Cash		$197.00

I (b) on Spencer's books:

Joint Venture with C. F. Munton	197.00	
C. F. Munton		197.00

"This cargo they consign to John Smith, their agent at Havana, which he disposes of, and in return ships on board the same vessel 4,000 cases of commodity A and 100 cases of commodity B; and he draws on Munton at sight for $125.00, this being the amount of the agent's charges and commissions over and above the net proceeds of the cargo consigned to him. Munton accepts and pays the bill." No entry is required until Munton accepts and pays the bill of exchange, when the recording will be:

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[1] This is an Illinois C.P.A. problem used December, 1907.

II (a) on Munton's books:

Joint Venture with W. A. Spencer	$125.00	
Cash		$125.00

II (b) on Spencer's books:

Joint Venture with C. F. Munton	125.00	
C. F. Munton		125.00

When the vessel arrives Munton pays sundry charges, $337.50, and Spencer pays the freight, $493.00. The entries will be:

III (a) on Munton's books:

Joint Venture with W. A. Spencer	$830.50	
Cash		$337.50
W. A. Spencer		493.00

III (b) on Spencer's books:

Joint Venture with C. F. Munton	830.50	
Cash		493.00
C. F. Munton		337.50

"Munton sells 1,000 cases of commodity A to Henry Chamberlain for $239.58." The entries are:

IV (a) on Munton's books:

Henry Chamberlain	$239.58	
Joint Venture with W. A. Spencer		$239.58

IV (b) on Spencer's books:

C. F. Munton	239.58	
Joint Venture with C. F. Munton		239.58

Munton "collects $150.00" from Chamberlain. The entries follow:

V (a) on Munton's books:

Cash	$150.00	
Henry Chamberlain		$150.00

V (b) there will be no entry on Spencer's books, the venture not being affected.

Spencer collects the balance, $89.58, from Chamberlain. The entries will be:

VI (a) on Munton's books:

W. A. Spencer	$ 89.58	
Henry Chamberlain		$ 89.58

VI (b) on Spencer's books:

Cash	89.58	
C. F. Munton		89.58

Spencer has "occasion for 1,400 cases of commodity A which he takes," valuing it, with Munton's consent, at $291.66. He also takes 10 cases of commodity B, agreeably valued at $47.50. The entries will be:

VII (a) on Munton's books:

W. A. Spencer	$339.16	
Joint Venture with W. A. Spencer		$339.16

VII (b) on Spencer's books:

Merchandise Inventory	339.16	
Joint Venture with C. F. Munton		339.16

Munton sells the other 1,600 cases of commodity A to John Walters for $383.33. The entries are:

VIII (a) on Munton's books:

John Walters	$383.33	
Joint Venture with W. A. Spencer		$383.33

VIII (b) on Spencer's books:

C. F. Munton	383.33	
Joint Venture with C. F. Munton		383.33

A month after the preceding transaction Munton accepts $382.50 in full payment from John Walters. The entries will be:

IX (a) on Munton's books:

Cash	$382.50	
Joint Venture with W. A. Spencer	.83	
John Walters		$383.33

IX (b) on Spencer's books:

Joint Venture with C. F. Munton	.83	
C. F. Munton		.83

This entry is made on the assumption that Spencer has agreed to consider the $.83 a cash discount chargeable against the joint venture. However, he might have insisted that Munton bear the loss personally, in which case Spencer would make no entry, and Munton would charge the loss not to the venture account but to an expense.

Munton presents $22.66, his bill of charges for expenses of the venture, and the entry will be:

X (a) on Munton's books:

Joint Venture with W. A. Spencer	$ 22.66	
Sundry expense accounts		$ 22.66

X (b) on Spencer's books:

Joint Venture with C. F. Munton	22.66	
C. F. Munton		22.66

The remaining cases of commodity B are exchanged for 30 cases of commodity C which are divided equally between Munton and Spencer.

The ninety cases of commodity B were worth $4.75 each at the value put on them when Spencer took ten cases. The entries therefore will be:

XI (a) on Munton's books:

Inventory of Merchandise	$213.75	
W. A. Spencer	213.75	
Joint Venture with W. A. Spencer		$427.50

XI (b) on Spencer's books:

Inventory of Merchandise	213.75	
C. F. Munton	213.75	
Joint Venture with C. F. Munton		427.50

Since all the merchandise has now been disposed of, the joint venture should be closed. The Joint Venture with C. F. Munton account on Spencer's books is identical with the Joint Venture with W. A. Spencer on Munton's books, and at this point each of these accounts shows a credit balance of $213.58. This profit is distributed by the entries:

XII (a) on Munton's books:

Joint Venture with W. A. Spencer	$213.58	
Profit and Loss on Joint Venture		$106.79
W. A. Spencer		106.79

XII (b) on Spencer's books:

Joint Venture with C. F. Munton	213.58	
Profit and Loss on Joint Venture		106.79
C. F. Munton		106.79

When the profit has been distributed, Munton's account on Spencer's books shows a credit balance of $42.70, but this amount shows as a debit balance on Spencer's account on Munton's books, and it is clear that Spencer owes Munton $42.70. When Spencer settles, the entries will be:

XIII (a) on Munton's books:

Cash	$ 42.70	
W. A. Spencer		$ 42.70

XIII (b) on Spencer's books:

C. F. Munton	42.70	
Cash		42.70

The venture is completely closed with this entry and the accounts can be ruled off, appearing as in Figure 66.

Principles of Joint Venture Accounting.—From the illustration in the preceding section, the principles of accounting for the joint venture on the general books will be fairly clear. They may be summarized as follows:

1. On the books of each participant open an account with the Joint Venture. This account is debited with every investment in the venture and with every expense of the venture, regard-

less of which participant makes the investment or pays or bears the expense. This account is credited with the amount of every sale of joint venture merchandise, with every withdrawal of joint venture merchandise by a participant, and with any incidental earnings, such as interest or commissions accruing to the venture as such. When the venture is concluded a credit balance in the joint venture account indicates a profit, and a debit balance a loss, and this profit or loss should be distributed in the agreed ratio, thus closing the joint venture account.

JOINT VENTURE WITH C. F. MUNTON (WITH W. A. SPENCER)

I	Merchandise	197.00	IV	Sale to Chamberlain	239.58
II	Merchandise	125.00	VII	Spencer withdrawal	339.16
III	Sundry Charges & Freight	830.50	VIII	Sale to Walters	383.33
IX	Discount	.83	XI	Withdrawals by Munton	213.75
X	Sundry Expenses	22.66		Withdrawals by Spencer	213.75
XII	Profit Distributed	213.58			
		$1,389.57			$1,389.57

C. F. MUNTON (ON BOOKS OF W. A. SPENCER)

IV	Sale to Chamberlain	239.58	I	Merchandise	197.00
VIII	Sale to Walters	383.33	II	Merchandise (draft)	125.00
XI	Withdrawal of Mdse.	213.75	III	Sundry Charges	337.50
XIII	Cash from Spencer	42.70	VI	Spencer's collection from Chamberlain	89.58
			IX	Discount to Walters	.83
			X	Sundry Expenses	22.66
			XII	Share of Profits	106.79
		$ 879.36			$ 879.36

W. A. SPENCER (ON BOOKS OF C. F. MUNTON)

VI	Collection from Chamberlain	89.58	III	Freight Paid	493.00
VII	Withdrawal of Mdse.	339.16	XII	Share of Profit	106.79
XI	Withdrawal of Mdse.	213.75	XIII	Cash to Munton	42.70
		$ 642.49			$ 642.49

FIGURE 66

2. Each participant opens an account with each other participant. When a participant invests in the joint venture or pays or bears any of its expenses, he debits the joint venture account on his own books and credits cash, inventory of merchandise, or the appropriate expense or asset account. The other participants debit the joint venture accounts on their books and credit the account of the participant making the investment or bearing the expense.
3. When a participant withdraws merchandise from the venture (or cash if it is in a common fund) he debits his inventory of merchandise (or cash) account, and credits the joint venture account on his books. The other participants credit the joint venture accounts on their books and debit the account of the participant making the withdrawal.
4. When a participant sells merchandise belonging to the joint venture, he credits the joint venture account on his books and debits his own accounts receivable or cash (unless there is a common cash fund). His subsequent collection of the accounts receivable causes no entry on the books of the other participants, but at the sale the other participants debit the one making the sale and credit joint venture on their own books.
5. When one member pays cash to another participant, the one receiving the cash debits his own cash account and credits the other participant; the one paying the cash debits the participant receiving cash and credits his own cash. The other participants debit the one receiving and credit the one paying.
6. If commission, salary, or interest is allowed to any participant, he debits joint venture and credits his appropriate income account, while the other participants debit joint venture and credit the one receiving the remuneration.
7. After the profits or losses have been distributed, the balances remaining between the participants should be settled to their satisfaction in cash or otherwise.

It will be noticed that each participant makes an entry for each transaction affecting the joint venture, that the joint venture accounts on the books of the several participants are identical, and that each participant's personal account on the books of the others is so kept as to show his exact investment and profit from the venture. If reports are made promptly, there should be no difficulty about an amicable settlement.

If the books are closed during a joint venture, it should be shown on the balance sheet as an asset valued at the balance of the joint venture account minus the interests of the other participants.

Contracts.—Contracts for construction running over a considerable period are not always joint ventures; they are more usually sole ventures. There is, however, enough similarity in all venture accounting on the general books to warrant treating both in the same chapter. Since one of the principal problems in contract accounting is that of valuation for the balance sheet, the records of a contract must be kept so as to facilitate this valuation.

When a construction contract is obtained, it is customary to make a memorandum entry.

Awarded Contracts	xxxx	
Uncompleted Contracts		xxxx
To record contract No. — at agreed price.		

This entry assumes that there is a definite contract price agreed upon, and it is made to record the fact of the agreement. As the work progresses the expenditures on the contract are charged to a particular account, thus:

Contract No. — in Process	xxxx	
Materials		xxxx
To record withdrawal of materials from stock for use on Contract No. —		
Contract No. — in Process	xxxx	
Cash		xxxx
To record direct expenditure on contract No. — for the following items:		
Contract No. — in Process	xxxx	
Direct Labor		xxxx
To apportion to Contract No. — that part of the direct labor payroll attributable thereto for the week ending —.		
Contract No. — in Process	xxxx	
Depreciation		xxxx
To apportion to Contract No. — its due share of the depreciation allowance for the six months ended —, estimated as follows: Steam Shovel — days at — Concrete Mixer — days at — etc.		
Materials	xxxx	
Contract No. — in Process		xxxx
To record return to stock of materials.		

These entries are, of course, illustrative rather than exhaustive, and are made in journal form, although a contracting firm would have specialized journals with columns for each contract. The account Contract No. — in Process is an asset account at cost.

Payments usually come due at certain definite stages of completion of the contract, and when this is the case the entry will be:

Accounts Receivable	xxxx	
Advances on Contracts		xxxx
To record amount due on Contract No. — which has reached — % of completion, in accordance with agreement.		

Since part of the contract is now represented in Accounts Receivable, the Advances on Contracts has become a valuation account, and the asset value of the job is the difference between the accounts Contract No. — in Process and its share of Advances on Contracts. At this point as much of the opening memorandum entry as has become due can be reversed:

Uncompleted Contracts	xxxx	
Awarded Contracts		xxxx
To reverse memorandum entry of ———, for the amount that has become due and payable on Contract No. —.		

When the contract is completed, entries similar to the two preceding will have reversed the opening memorandum entry and have brought the account Advances on Contracts up to the sum of the amounts due, excluding the final payment. At this time the entry will be:

Accounts Receivable (last installment due)	xxxx	
Advances on Contracts (total balance on this contract)	xxxx	
Contract No. — in Process (full cost)		xxxx
Profit and Loss on Contracts		xxxx
To record completion of Contract No. — at a profit of —.		

If there has been a loss, a debit to Profit and Loss will, of course, balance the entry.

If the books must be closed while a contract is unfinished, the most conservative practice is to value it at cost, and this should always be followed unless there is strong reason for attempting to value the contract at cost plus profit to date of closing. If there is a non-cumulative preferred stock which might fail to receive dividends in case the partial contract profits are not taken up, or in case a contracting partnership is about to be dissolved, or in the case of the death of a partner and an impending settlement with the estate, it is only fair to the various interests involved to estimate the profit on each contract to the date of closing.

The best formula for valuing a fixed-price contract in such circumstances is as follows:

I. Contract Price		xxxxxxx
II. Less Estimated Cost		
III. Cost to date	xxxxxx	
IV. Probable Cost to Complete	xxxxxx	xxxxxxx
V. Probable Profit on Whole Contract		xxxxxxx

VI. Estimated Profit =

$$\frac{(\text{Cost to Date}) \times (\text{Probable Profit on Whole Contract})}{\text{Cost to Date} + \text{Probable Cost to Complete}}$$

This formula prorates the profit between the periods on the basis of the known or probable expenditure in those periods. As Kester says, it may take the "vision of a seer" to make an accurate estimate of the probable future cost to complete the contract.

When the profit has been thus estimated, two entries can be made:

Contract No. —, in Process	xxxx	
Profit and Loss on Contracts		xxxx
To record estimated profit on contract to date.		
Surplus	xxxx	
Reserve for Unrealized Profit on Contracts		xxxx
To set up a reserve for the unrealized profit in Contract No. — equal to the profit estimated thereon to date.		

The setting up of the reserve is a conservative step that would not be taken in case a partnership were to be dissolved; and on the completion of the contract this reserve should be returned to surplus. The debit to Contract No. — in Process increases the amount of that account so that when the job is completed and the account is closed, the correct amount of the previously unbooked profit will be taken up.

"Cost plus" contracts lend themselves readily to valuation and to profit taking at the closing of books prior to their completion.

Summary.—Joint ventures are undertakings of two or more business units to realize a profit from a rather brief series of transactions conducted outside of the usual systematic organized routine of their business. They are much like a special partnership.

Although a complete special set of books may be used in the accounting for such a venture, it is far more common to use only certain accounts in the general ledger, each participant opening an account with Joint Venture and with each other participant.

The profits of joint ventures are shared as are partnership profits, adjustments sometimes being made for interest, commissions, and salaries to the managing participant.

Joint ventures frequently involve consignments to factors in other cities or nations.

Although it is usually unwise to take unrealized profits on contracts on the books, this practice is sometimes necessitated by peculiar circumstances; in such cases the profit to date may be estimated as a fraction of the total expected profit proportional to the cost to date divided by the total estimated cost.

While accounting for occasional contracts may be carried on the general books, contracting firms use special columnar journals and a subsidiary contracts ledger.

QUESTIONS

1. In a text on corporation finance look up and report on the syndicates for selling or underwriting securities.

2. Suppose the merchandise of the joint venture is consigned to a commission merchant; what differences, if any, would there be in the accounting from that when one of the participants acts as manager?
3. Explain why it is necessary for each participant in a joint venture to have an account with every other participant, and show how such an account is used.
4. Look over the Munton and Spencer joint venture problem worked through as an illustration in the text. Suppose that the $.83 allowed by Munton to John Walters had to be borne by Munton for his carelessness in failing to collect in full, and that the $22.66 claimed by Munton as expenses was his commission as manager. Make the entries from IX on as they would be under the changed conditions.
5. In accounting for the joint venture on the general books, why does each participant have to make an entry for each transaction, whether or not he is a party to the transaction? Is there any way of abbreviating these entries?
6. Suppose the participants in a joint venture are separated by a considerable distance, such as the width of the ocean. How can each participant make an entry for each transaction?
7. Can you think of any possible joint venture transaction that is not covered in the section on principles of joint venture accounting? If you find any transaction not discussed, formulate a principle for handling it.
8. Trace through the history of an account Contract No. — in Process from its opening to its closing, assuming that the books are closed and the proportionate profit taken up at some time before its completion.
9. How would the problem of valuing "cost plus" contracts for inventory and for profits before completion differ from that of valuing fixed-sum contracts, (a) if the contract were for cost plus a per cent of cost, and (b) if it were for cost plus a lump sum?
10. How would the client value a partially completed contract on which he has made payments as agreed, in case considerable work has been done since his last payment?

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CHAPTER XIV

INSTALLMENT SALES

The Nature of Installment Sales.—While installment sales are not new, their enormous expansion in the United States since 1920 has been the occasion of deep concern to economists and business men. This concern has arisen partly because buying consumption goods on the installment plan has apparently habituated the "average family" to a state of being in debt, partly because of fear that the inevitable periods of depression would force dealers to take heavy losses, and partly because the effort to keep up the installments sometimes seems to divert a large portion of family incomes from the more beneficial objects of expenditure. It appears to be highly probable that the inflation which culminated in 1929 had been aggravated by the large volume of installment trading and that the ensuing depression was therefore more severe. However, important and interesting as are the economic and social problems arising out of the increase of installment buying, this text must confine itself to the accounting technic.

In the case of the ordinary sale on personal credit, it is expected that the resulting account receivable will be collected in full in some short period like 30, 60, or, at most, 90 days. The installment sale, on the other hand, results in an account receivable which is to be realized in a series of periodic, relatively small collections. The risk of loss on the installment sale is greater than that on the ordinary sale because (1) the longer complete payment is postponed the more probable is some catastrophe in the life of the purchaser, such as illness, death, or the loss of a job; (2) the older the article sold becomes the less enthusiasm is the purchaser likely to have in paying for it and the more he wishes to spend his money for something else; and (3) articles purchased on installment are more apt to be beyond the means of the buyer than merchandise bought on ordinary personal credit. The Income Tax Regulations, 74, mention four common ways of protecting the installment seller from these excessive risks:

1. "An agreement that title is to remain in the vendor until the purchaser has completely performed his part of the transaction;
2. "A form of contract in which title is conveyed to the purchaser immediately, but subject to a lien for the unpaid portion of the selling price;

3. "A present transfer of title to the purchaser, who at the same time executes a reconveyance in the form of a chattel mortgage to the vendor; or
4. "Conveyance to a trustee pending performance of the contract and subject to its provisions."

None of these devices can assure the vendor against loss, but any of them will decrease the risks. The probability of loss in event of repossession is greater in the case of "soft goods," or merchandise which is appreciably injured by even small use, than in the case of "hard goods," or articles which may be used a great deal without perceptible deterioration. A variation of the installment method is the "deferred payment" plan of selling, which involves a down payment of 25 per cent, or some other substantial fraction of the sales price, the balance being payable in relatively small periodic deposits. This initial payment is often made large enough to cover any probable value shrinkage in the merchandise in case it has to be replevined.

Merchants who sell on the installment basis may, if they choose, keep their accounts just as do other retailers, setting up reserves for bad debts in such amounts as are deemed sufficient to absorb the probable credit losses. However, the proportion of bad debts varies so much from year to year that most retailers who sell any considerable amounts of merchandise on installment find it safer to defer as unrealized the uncollected profit on such transactions. This deferment may be accomplished at the time of each sale by such an entry as the following:

Installment Accounts Receivable	xxxx	
Inventory of Merchandise		xxxx
Deferred Profit on Installment Sales		xxxx
To record sale of — to —, crediting Inventory of Merchandise at cost and Deferred Profit on Installment Sales for the difference between the selling price and the cost.		

The making of this type of entry for each of a large number of transactions would be so burdensome as to be impractical, even if sales journals were used which were specially ruled to eliminate all necessity of explanations, columns being devoted to recording the debits to Installment Accounts Receivable and the credits to Inventory of Merchandise and to Deferred Profit on Installment Sales. It is, therefore, common practice to record the installment sales and the regular transactions in the same journal, having special columns for the Regular Accounts Receivable, the Installment Accounts Receivable, the Regular Sales, and the Installment Sales. At the end of the year the Regular Sales and the Installment Sales accounts are closed into different trading accounts. Similarly, the costs of the regular sales and of the installment sales are computed separately and closed into the appropriate trading accounts. The Regular Trading Account is closed into Profit and Loss as in any ordinary merchandising business, but the Installment Trading Account is closed into a Deferred Profit on Installment Sales Account, thus:

Installment Trading Account	xxxx	
Deferred Profit on Installment Sales, 193—		xxxx
To defer the profit on the installment sales of 193—.		

Either of the types of entry illustrated in the preceding paragraph throws the entire gross margin of profit on installment sales for the period into the account Deferred Profit on Installment Sales. Each year the realized portion of this deferred profit is transferred into the Profit and Loss account by the following entry:

Deferred Profit on Installment Sales, 193—	xxxx	
Profit and Loss		xxxx
To adjust into Profit and Loss that proportion of the deferred profit on the installment sales of 193—realized through the collections of the current year.		

There are three methods of determining the amount of this adjustment, namely:

1. The first cash collections may be considered as realization of the deferred profit until they equal that profit, subsequent collections being regarded as a return of the cost of sales. In order to make this clear, suppose that the installment sales for 1930 amounted to $100,000.00, the cost of the merchandise being $70,000.00 and the deferred profit $30,000.00. On the accounts set up as a result of these sales the collections were $40,000.00 in 1930, $40,000.00 in 1931, and $20,000.00 in 1932. If all collections are considered as a realization of profit until the entire deferred profit has been adjusted into Profit and Loss, the transfer at the end of 1930 will be $30,000.00, and there will be no subsequent debits to Deferred Profit on Installment Sales, 1930, because that account will have been closed. This method is altogether too optimistic, being contrary in effect to the very purpose of deferring profits.
2. The collections may be considered as being entirely a refund of the cost of the merchandise sold until that cost has been completely made up, subsequent collections being a realization of the deferred profit. Thus, the seller regards no profit as being realized from the sales of a period until his collections of installment accounts of that period begin to exceed the cost of the goods sold therein. Referring to the illustration above, it will be seen that $30,000.00 would have been credited to Deferred Profit on Installment Sales, 1930, at the end of the year. The collections during 1930 on these accounts being only $40,000.00, they did not equal the cost of the merchandise sold. Consequently no adjustment was made at the end of 1930 into Profit and Loss, no profit being regarded as realized on the sales on installment during the year. In 1931, another $40,000.00 having been collected on the 1930 installment sales, the full cost of the merchandise then sold has been returned and, in addition, $10,000.00. Therefore, December 31, 1931, an entry is made debiting Deferred Profit on Installment Sales, 1930, and crediting Profit and Loss $10,000.00. Since the entire cost of the merchandise has been returned before January 1, 1932, the entire collections of 1932 against 1930 installment sales are considered as realization of profit. Consequently on December 31, 1932, an adjustment is made debiting Deferred Profit on Installment Sales, 1930, and crediting Profit and Loss $20,000.00. This method is not allowed by the United States Treasury Department because it is over-conservative.

3. As set forth in the Income Tax Regulations, 74, "The general rule prescribed is that a person who regularly sells or otherwise disposes of personal property on the installment plan, whether or not title remains in the vendor until the property is fully paid for, may return as income therefrom in any taxable year that proportion of the installment payments actually received in that year which the total or gross profit (that is sales, less cost of goods sold) realized or to be realized when the property is paid for, bears to the total contract price." Since the rate of gross profit in the illustration was 30 per cent, the profit to be reported on the 1930 installment sales would be 30 per cent of the collections made on those sales each year, or $12,000.00 in 1930, $12,000.00 in 1931, and $6,000.00 in 1932. Therefore the transfers from the account Deferred Profit on Installment Sales, 1930, to Profit and Loss would be $12,000.00 December 31, 1930, $12,000.00 December 31, 1931, and $6,000.00 at the close of 1932. This method of measuring realized profits has the approval not only of the Treasury Department, but of most accountants. It is at once conservative and fair.

The Technic of Installment Accounting.—The technic of accounting for installment sales is designed to lessen the labor incident to deferring profits. As has been intimated, the sales journal should have separate columns for the regular and the installment accounts receivable, and for the regular and the installment sales. There should be one or more ledgers for the regular accounts receivable and at least

Name__________ No.__________
Address__________ Employer__________
New Address__________ Employer's Address__________
New Address__________ Position__________
New Address__________ Weekly Income__________

Date	Charges	Amount

PAYMENTS

Date	L.F.	Payment	Balance	Date	L.F.	Payment	Balance

Figure 67

Installment Ledger Sheet

one ledger for each year for the installment accounts receivable. The necessity for a separate installment accounts receivable ledger for each year arises from the need of accounting separately for the collections on the installment sales of each year, both for the purpose of making proper adjustments between the Deferred Profits accounts and the Profit and Loss account, and to furnish accurate data for the preparation of income tax returns. Since the ordinary ledger form is not especially adapted to installment accounting, it may be wise to use a special sheet, similar to Figure 67. The record of cash receipts should have a credit column for each of the installment accounts receivable ledgers. Installment accounts can be designated with letters and numbers so that the years of their origin will be apparent.

Routine procedure is simple. Whenever an installment sale is made, it is entered in the Installment Accounts Receivable column of the sales journal. From this entry the debit posting is to the personal account in the installment accounts receivable ledger, the total of the column being posted to the control account for Installment Accounts Receivable of the current year. The corresponding credit is to Installment Sales. Collections are entered in the Record of Cash Receipts, the amounts being placed in the Installment Accounts Receivable column set apart for the year in which the corresponding sales took place. The total of each of these Installment Accounts Receivable columns is posted to the credit of the appropriate controlling account in the general ledger, the items going to the credit of the particular personal accounts. Thus, except at closing time, sales and collections are handled as in ordinary merchandising books, save that the Installment Accounts Receivable are segregated into subsidiary ledgers according to the years when the sales were made, and Installment Sales are separated from other sales.

At the close of the year it is well, if possible, to close the two Sales accounts into the Regular Trading account and the Installment Trading account. If this can be done, the Regular Trading account is charged with the cost of the regular sales, and the Installment Trading account is debited with the cost of the installment sales. The Regular Trading account is then closed into Profit and Loss, and the Installment Trading account into Deferred Profit on Installment Sales, 193—. While it should always be possible to separate the installment from the regular sales, it may be too great a task to segregate the cost of the installment sales from that of the regular transactions. In that case, all of the accounts affecting gross profit should be closed into one Trading account, from which the rate of gross profit on sales can be calculated. The installment sales for the year should be multiplied by this rate to obtain the deferred profit on installment sales for the period. The amount of the deferred profit thus calculated should be debited to the Trading account and credited to Deferred Profit on Installment Sales, 193—. The balance of the Trading account may then be closed into Profit and Loss. To illustrate this latter method, suppose that the sales during 1930 were $150,000.00, of which $100,000.00 were on the installment plan. The cost of sales, $105,000.00, cannot be divided between regular sales and installment sales. The gross trading profit appears to be $45,000.00, or 30 per cent of the sales. Assuming that the rate of gross profit was the same on both classes of sales, the Trading account would be closed by the following entries:

Trading Account	$30,000.00	
Deferred Profit on Installment Sales, 1930		$30,000.00
To defer profit on 1930 installment sales, 30% of $100,000.00.		
Trading Account	15,000.00	
Profit and Loss		15,000.00
To close Trading Account into Profit and Loss.		

This method is available only in case the approximations are substantially accurate, because "the dealer who desires to compute his income on the installment basis shall maintain books of account in such a manner as to enable an accurate computation to be made on such basis."

The next step in closing which is peculiar to dealers selling on installments is the adjustment of the Deferred Profits accounts into the Profit and Loss account. Analysis of the credits to the several Installment Accounts Receivable control accounts will disclose what collections have been made on the accounts in each of these ledgers. These several amounts of collections will be multiplied by the rates of gross profits on installment sales for the respective years, the products being the amounts of the adjustments between the Deferred Profits accounts and the Profit and Loss account. Assume that during 1930 the firm had collected $40,000.00 on the current installment sales, $30,000.00 on the 1929 installment sales, and $25,000.00 on the 1928 installment sales, the rates of gross profit being respectively 30, 32, and 33 per cent. The adjustments would be:

Deferred Profit on Installment Sales, 1928	$ 8,250.00	
Profit and Loss		$ 8,250.00
To take up realized profit on installment sales of 1928, 33% of $25,000.00.		
Deferred Profit on Installment Sales, 1929	9,600.00	
Profit and Loss		9,600.00
To take up realized profit on installment sales of 1929, 32% of $30,000.00.		
Deferred Profit on Installment Sales, 1930	12,000.00	
Profit and Loss		12,000.00
To take up realized profit on installment sales of 1930, 30% of $40,000.00.		

The other closing entries will be just like those in the books of ordinary merchandising organizations, for it is neither wise nor in harmony with the Income Tax Regulations to defer expenses incurred in making installment sales. The Deferred Profits accounts are reduced year by year as collections are made from the purchasers of the related periods, each Deferred Profits account being balanced as the final collections are made or as the last accounts are written off as bad debts.

This description of the technic of handling installment sales and accounts has oversimplified the problem in two important particulars. Not all the accounts are collected in full. When it is decided to abandon the effort to secure payment from a customer, the merchandise is repossessed if it can be found and if it is worth taking back. The accounting for repossessions is described in the next section. The other over-simplification arises from the fact that it is the policy of many installment dealers to keep their customers "sold to the limit." That is, before a customer has finished paying for one article, an attempt is made to sell him another, thus keeping his name continuously on the books. To have more than one account with each customer might prove confusing, therefore all the installment customers, no matter what the dates of their purchases, are grouped in one installment ledger or in a set of ledgers arranged under one alphabet. This proceeding makes difficult the segregation of collections by the year of the origin of the personal account when entries are made in the cash book. In such a situation the installment ledger is analyzed at the close of each year in order to determine how much of the collections of the period applies on the accounts for sales of each year for which there is a Deferred Profits account. While such an analysis is tedious, it may involve less work for the year as a whole than would the systematic segregation of accounts as first described.

Another complication which frequently arises grows out of interest charged on the unpaid balances of accounts. The typical installment dealer in personal property fixes his selling prices so high that they include ample allowance for interest. Yet on most installment sales of real estate and on many such sales of personality, the contract calls for interest in addition to the first price. In handling this interest, two methods have rather wide vogue. Calculations of interest may be made monthly, quarterly, semiannually, or yearly, the charges placed on the accounts of the customers being added to their balances; the credits are to Interest Earned. The other method is to make a daily entry debiting Accrued Interest Receivable from Customers and crediting Interest Earned. In this case the calculation is based on the daily balance of the customers' accounts. When the customer makes his final settlement, the interest on his account is calculated, and an entry is made to debit him and to credit Accrued Interest Receivable from Customers. He then pays the balance of his account including the interest. In either case, when the adjustments to deferred profits are calculated, care must be taken to separate the amounts collected for interest from those taken in on the original accounts.

Accounting for Repossessions.—A considerable per cent of goods sold on installments has to be repossessed because of the failure of the purchaser to keep up his payments. Such repossession brings a problem of valuation and profit. The Treasury Department regulations provide that "If for any reason the purchaser defaults in any of his payments, and the vendor returning income on the installment basis repossesses the property, the entire amount received in installment payments and retained by the vendor, less the sum of the profits previously returned as income and an amount representing proper allowance for damage and use, if any, will be the income of the vendor for the year in which the property is repossessed, and the property repossessed must be carried on the books of the vendor at its original cost, less proper allowance for damage and use, if any." The working of this perfectly fair rule will be illustrated by an example.

Suppose a radio receiving set which cost $90.00 was sold on the installment plan for $200.00, during the year 1930. By December 31, 1930, $100.00 had been collected. The entries to this point would have been:

Installment Accounts Receivable (Name Customer)	$200.00	
Installment Sales		$200.00
Cash	100.00	
Installment Accounts Receivable (Name Customer)		100.00

In closing the books December 31, 1930, the entries concerning this sale would have been:

Installment Trading Account	$110.00	
Deferred Profit on Installment Sales, 1930		$110.00
Deferred Profit on Installment Sales, 1930	55.00	
Profit and Loss		55.00

In January, 1931, an installment of $20.00 is collected, and the entry is:

Cash	$20.00	
Installment Accounts Receivable (Name Customer)		$20.00

The February installment, however, is not paid and the instrument is repossessed. It is taken into stock at $50.00. Following the Treasury

Department ruling, the income to be reported in 1931 on this set will be found thus:

Entire amount received by vendor in installment payments and retained by him			$120.00
Deduct			
Profits previously returned as income		$55.00	
Amount representing allowance for damage and use			
Cost	$90.00		
Appraisal at repossession	50.00	40.00	95.00
Amount of income for 1931			$ 25.00

The question now arises as to how this profit is to be shown on the books. The first step is to add the repossessed article to the inventory at the appraised value:

Purchases (or Inventory of Merchandise)	$50.00	
Installment Accounts Receivable (Name Customer)		$50.00
To charge to inventory and credit to the customer the radio set repossessed at its appraised value.		

After this entry the accounts concerned have balances as follows: the customer's account $30.00 debit; the unrealized profit account, $55.00. The entry to complete the closing of the transaction will therefore be:

Deferred Profit on Installment Sales for 1930	$55.00	
Installment Accounts Receivable (Name Customer)		$30.00
Profit and Loss on Repossession		25.00
To close out account of ——— and the deferred profit on installment sale No. — to him into Profit and Loss on Repossession.		

It will be noticed that this profit on repossession is exactly that found by the Treasury Department formula, and that the Deferred Profit on Installment Sales, so far as this particular sale is concerned, is completely closed. The customer's account is also closed. Should the formula show a loss instead of a profit, there would be a debit to Profit and Loss on Repossession.

The rule for accounting for a repossession, then, is: debit inventory, or purchases, and credit the defaulting customer with the appraised value of the article repossessed; debit the Deferred Profit on Installment Sales with whatever balance of deferred profit appertains to the repossessed article, credit the customer with whatever his debit balance may be, and balance the entry with a credit or a debit to Profit and Loss on Repossession.

Accounting for Installment Sales of Real Estate.—Lots are often sold by real estate companies on contracts whereby the vendor retains title until the final payment has been made. In such a case, even though it retains the title, the real estate company must remove the land from its inventory. This is accomplished by crediting a valuation account, "Lots Sold under Contract," with the carrying value of the land, debiting the purchaser's personal account with the amount of the contract price, and crediting Deferred Profit on Sales of Land with the gross gain. Thus, if a contract is entered into for the sale, for $1,000.00, of a lot which cost $500.00, the transaction would be recorded by the entry:

Customer	$1,000.00	
Lots Sold under Contract		$500.00
Deferred Profit on Sales of Land		500.00
To record sale of lot #— to ——— on the following terms:		

The customers' accounts make up a contracts receivable ledger if their number is large. As collections are made, Cash is debited and the several customers are credited. When the books are closed, an adjustment is made to transfer, from the Deferred Profit on Sales of Land to Profit and Loss, that proportion of the profits deferred on each sale consummated which the collections bear to the several contract prices. Whenever a customer finishes his payments he is given title to the land, and the account Lots Sold under Contract is adjusted with the inventory account. Thus, when the customer whose purchase was recorded in the illustrative journal entry above pays his last installment and receives the deed, the entry will be:

Lots Sold under Contract	$500.00	
Inventory of Lots		$500.00
To record transfer of title to lot #— to ———.		

It is not necessary to adjust the Deferred Profit on Lots Sold until the books are closed, at which time one entry will suffice for all the collections of the period.

In case a purchaser defaults in his payments, thus forfeiting his contract and the installments he has made, Lots Sold under Contract is debited for the original carrying value of the lot, Deferred Profit on Sales of Land is debited for whatever balance of deferred profit on the particular lot concerned it includes, the customer's personal account is credited the amount of its balance, and Profit and Loss on Forfeited Contracts is credited or debited in an amount sufficient to balance the entry. Suppose that a lot which cost $1,000.00 was sold on contract for $1,500.00. Up to the last closing of the books $600.00 had been collected. After the books were closed the balances of the accounts concerned were: Customer, $900.00 debit; Lots Sold under Contract, $1,000.00 credit; and Deferred Profit on Sales of Land, $300.00, as far as this particular transaction is concerned. Since closing, the customer has paid $100.00 which was duly credited to his account, leaving a debit balance of $800.00. The purchaser's payments having ceased in such circumstances that ultimate collection from him is impossible, his contract is declared forfeited. The adjustment is made as follows:

Lots Sold under Contract	$1,000.00	
Deferred Profit on Sales of Land	300.00	
Customer		$800.00
Profit and Loss on Forfeited Contracts		500.00
To record forfeiting of contract of ——— to purchase lot #—.		

It is plain that this entry is merely a variation of the one for the repossession of personal property, the difference being due to the fact that title has not actually passed, or rather, to the fact that the change in possession has been recorded in the valuation account Lots Sold under Contract. Of course a similar account, Merchandise Sold under Contract, could be used where personal property is sold on installments but title retained until payment is complete. Merchandise, however, is more apt to suffer harm than is real estate. This is not an absolute distinction because the value of land may fall between the time a contract is made and the date of repossession—a rather frequent occurrence on lots sold by "high pressure" methods—and because buildings often suffer severely from careless occupiers. Other methods of valuing repossessed land are described in the Federal Income Tax Regulations.

The method of accounting for installment sales of land is applicable provided the contract does not fall under the Treasury Department definition of a "deferred-payment sale," that is, a sale "in which the payments received in cash or property other than evidences of indebtedness of the purchaser during the taxable year in which the sale is made exceed 40 per cent of the selling price." In the case of deferred-payment sales, the vendor may not defer any part of the profits in reporting his income for taxation.

Assignment of Accounts Receivable.—If the business of an installment house grows rapidly, there is great strain on its working capital. Collections are long drawn out, but purchases of merchandise have to be paid for promptly. Thus a sudden increase of sales, even at profitable prices, may bring insolvency. Because of this situation, installment houses have frequently resorted to the device of pledging their accounts receivable. There are two classes of plans for hypothecating accounts, the "notification plan" and the "non-notification plan." Under the first the customer makes his down payment to the seller but is instructed to make further remittances to the finance company. Since this system discloses the unstable condition of the retailer, and since patrons may find it inconvenient to visit the financing company to make their payments, the non-notification plan is more popular. If the customer is not informed that his account has been assigned, he makes his periodic payments directly to the installment house. This firm endorses the checks "pay to any bank or banker" and turns them, together with the cash collections, over to the finance company as rapidly as they are received. Thus the customer has no inkling of the situation. Whichever plan is adopted, the finance company advances to the retailer only a fraction of from 65 to 85 per cent of the unpaid balances of the customers' accounts pledged. Part of the sum withheld, perhaps 10 per cent of the accounts, is permanently retained as a "commission," the remainder being considered a "bankers' margin" to protect the finance company against credit losses. In addition, the borrower guarantees all accounts pledged, and the finance company has the right to reject any accounts it considers unsatisfactory. There is a charge of interest for the money actually advanced, the rate commonly being 1/25 per cent per day. In this way, the cost of cash borrowed on hypothecated accounts runs well over 20 per cent per annum.

Under the notification plan, the accounting will be as follows:

1. When the accounts are pledged:

Cash	xxxx	
Banker's Commission	xxxx	
Banker's Margin	xxxx	
Accounts Receivable Discounted		xxxx

Although accounts are turned over to the finance company, duplicates are retained by the installment house in an accounts receivable under discount ledger, in order that all records may be kept correctly.

2. When the finance company makes a collection and reports it to the retailer:

Accounts Receivable Discounted	xxxx	
Accounts Receivable		xxxx

This entry is for the full amount of the collection. The credit is posted to the personal account in the accounts receivable under discount ledger.

3. When a discounted account is turned back uncollected by the finance company:

Accounts Receivable Discounted	xxxx	
Banker's Margin		xxxx
Cash		xxxx

The finance company is paid the difference between the uncollected balance of the account and the margin allowed on that account. If an attempt is to be made to collect the account, it is transferred from the accounts receivable under discount ledger to the ordinary customers' ledger. But if the account is without doubt worthless it is charged off against Bad Debts or against Reserve for Bad Debts.

4. When interest is paid to the finance company:

Interest on Accounts Receivable Discounted	xxxx	
Cash		xxxx

5. When the finance company returns its margin after all accounts have been settled:

Cash	xxxx	
Banker's Margin		xxxx

Under the non-notification plan of pledging accounts the entries are somewhat different. Typical transactions would be accounted for as follows:

1. When the accounts are pledged:

Cash	xxxx	
Finance Company's Commission	xxxx	
Notes Payable, Secured by Pledged Accounts		xxxx

Either a detailed list of the accounts receivable pledged or duplicate copies would be turned over to the finance company to give it evidence as to exactly what has been used as security. The installment house will remove the pledged accounts from its regular customers' ledger and place them in a special ledger for accounts receivable pledged, or accounts receivable held in trust for finance company. The naming of the account Finance Company's Commission is perhaps a bit more accurate than the phrase Banker's Commission used in the preceding series of entries.

2. When the installment house collects from a customer whose account has been pledged and turns over the amount collected to the finance company:

Cash	xxxx	
Accounts Receivable Pledged		xxxx
Notes Payable, Secured by Pledged Accounts	xxxx	
Cash		xxxx

The contract usually requires the entire collection to be turned over to the finance company unless a smaller amount will settle the part of the total loan secured by the account concerned.

3. When interest is paid on the loan:

Interest on Loan from Finance Company	xxxx	
Cash		xxxx

4. When a pledged account is found to be uncollectible:

Bad Debts (or Reserve for Bad Debts)	xxxx	
Accounts Receivable Pledged		xxxx

Notes Payable, Secured by Pledged Accounts	xxxx	
Cash		xxxx

The finance company will have to be paid at once the full amount loaned on any account found to be bad. An alternative would be the substitution of some other account from the regular customers' ledger for the one written off.

Throughout these last two series of entries, debits and credits are made to the personal accounts of the customers wherever the model indicates an entry to Accounts Receivable, Accounts Receivable under Discount, or Accounts Receivable Pledged. The illustration shows merely the controlling account affected in these cases. It will be noticed that, under the system of accounting here suggested for the non-notification plan, it is not necessary to set up an account for the Finance Company's Margin. The margin exists, none the less, for the loan is always less than the face of the accounts offered as security. Under the non-notification plan the retailer acts as trustee for the finance company in collecting the pledged accounts.

Old-line bankers have sedulously avoided lending on pledged accounts receivable, in the belief that an organization that had to offer such security was too poor a risk to be accommodated by a commercial bank which is responsible for the safety of the deposits of its customers. As a result, a host of finance companies has arisen, particularly since 1920, and their business has attained to large proportions. Many of the finance companies borrow from the commercial banks on their credit standing as shown by their balance sheets and records. The funds thus borrowed are promptly loaned to merchants on pledged accounts, thus making the commercial banks indirectly lenders to the installment houses. On the whole, borrowing on hypothecated accounts is so expensive a way of securing loans that it should be shunned except in very unusual circumstances.

Summary.—The chief difference between installment sales and ordinary charge sales is in the number of payments and the length of time over which they extend. This makes the risk of loss far greater in installment sales.

Two types of precaution are taken against this greater risk. By deferring profits and prorating collections between profits and cost of sales, the merchant guards against inflating profits for the period in which the sale takes place. By retaining title until payments are complete, by taking a chattel mortgage or a lien on the merchandise, or by placing title in the hands of a trustee, the installment house retains the right to repossess the goods whenever payments lapse. Ordinarily the price on goods sold on installments is set so high that if a few payments have been made the seller is protected against absolute loss, although even if he exercises his right of repossession his profit will be reduced by lapses.

The peculiarities of the system of accounting for installment sales are three: (1) There may be a subsidiary installments ledger and the corresponding control account and specialized columns in the journals for each year, until the transactions for that year have been closed. (2) Profits on installment sales for each year are carried to a deferred profits account for that year, and then carried into profit and loss prorata in proportion to collections of that year's sales. (3) Repossessions are accounted for by debiting inventory or purchases with the appraised value of the reclaimed goods, by crediting the customer's account with the balance he owes, by debiting the deferred profit account with the balance on the particular sale that is still deferred, and by debiting or crediting profit and loss on repossession with the sum necessary to balance the entry. Such a repossession entry achieves the result demanded by the United States Income Tax Regulations.

In accounting for sales of real estate where possession of title is retained and where payments are on the installment plan, the profit may be deferred and a real estate valuation account set up under some such title as Lots Sold under Contract. The deferred profit is adjusted into profit and loss prorata with collections and, when title is transferred, the valuation account is closed into the asset Lots or Land.

Installment selling in large volume is a great strain on the financial resources of the merchant. This often drives installment houses to discount their installment accounts receivable on either the notification or the non-notification plan. The expenses of such discounting are so high as frequently to prove ruinous.

QUESTIONS

1. Make a list of all the reasons you can think of for there being greater risk of loss on installment accounts receivable than on ordinary charge accounts.
2. Obtain from some business organization a complete description of the method used in handling customers who make partial payments, including a sample of the contract made with such customers, and report. (Suggestions: an automobile agency, a furniture store, a clothing store, a dealer in electrical machinery for the home, a dealer in farm implements, a large mail-order house.)
3. Show how the Treasury Department rulings have affected accounting for installment sales. Has the effect been good or bad?
4. Why is it desirable to keep the cost of goods sold on installments separate from the cost of goods sold on ordinary charge accounts? How can this be done by a merchant?
5. Can you draft a different set of entries for accounting for repossession

in case of default of payment on goods sold on the installment plan?

6. Why is the method of deferring profits considered a better way of providing for bad debts than the creation of a reserve in the case of installment sales, although the reserve for bad debts is used exclusively for ordinary charge sales?
7. Devise a system of accounting for goods sent out on approval, the customer having the right to return them within thirty days.
8. Prepare a report on the methods of "financing companies."
9. Investigate and report on the difference between "long-end interest" and "short-end interest."
10. If real estate is sold on an installment plan, profits also being deferred, and if interest on balances unpaid at the beginning of the six months is charged to the customers' accounts semiannually, how will you distinguish between the payments of interest and of principal by the customers, in order to adjust the deferred profits into profit and loss?

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CHAPTER XV

AGENCIES AND BRANCHES

The Difference between Agencies and Branches.—Frequently it becomes advisable for a business organization to have more than one selling outlet. These additional sales posts may be in distant communities or in different districts of the same city. Whether these owned stores or offices are called "agencies" or "branches" depends on many factors, there being no distinct line of separation. The following have been suggested as the points of difference between them:

1. Ordinarily the branch can complete a sale, passing on its own credits, while the agency must submit its orders to the home office for approval.
2. The branch usually pays its own bills out of its own funds, while the agency pays only small sums out of an imprest fund, depositing all its collections to the credit of the home office.
3. The typical branch maintains a complete stock of merchandise from which it makes deliveries, while the agency is more likely to have merely a line of samples, delivery being made from the home office.
4. The branch may have considerable independence in management, sometimes carrying stock bought from outside interests, while the typical agency has very little such independence.
5. The entire accounting for an agency may be conducted in the home office except for the records of the imprest fund, of sales, and of collections, but a branch usually maintains a complete set of books. Sometimes, however, the branch books are kept at the home office from daily or weekly reports. Occasionally duplicate books are kept, one set at the branch and the other at the home office.

These contrasts suggest similarities. The main purpose of either the branch or the agency is to promote the business of the parent organization—to sell its products or its merchandise if that organization is a manufacturing or merchandising concern. If profits can be increased by carrying other goods than those offered by the home office, the branch is likely to be allowed to seize this opportunity, provided attention is not thereby diverted from the main line of business. The home office is ultimately responsible legally and economically for either the agency or the branch, which means that ultimate control must be vested unequivocally in the home office. The home office furnishes the merchandise for the main stock of the agency and of the branch, and the reputation which helps to sell the goods.

Thus, agencies and branches are similar in purpose and function, but they differ in the extent of authority given them and in the precise method of achieving the end in view.

Accounting for the Owned Agency.—Accounting for the owned agency is simple. If the agency is given an imprest fund for meeting small bills, all of its transactions can be booked in the regular accounts at the home office. In times of appraisal of assets or of inventory taking, it will be necessary to include the items at the agency. The objection to such a method of handling the agency transactions is that the books will have to be analyzed whenever it is desired to determine whether the agency has been profitable.

Since it is better to segregate agency transactions, a number of agency accounts are usually opened on the books of the home office, such as Imprest Fund, Agency at ——; Sales, Agency at ——; Purchases, Agency at ——; Expenses, Agency at ——; Inventory, Agency at ——; and Profit and Loss, Agency at ——. If the transactions are of varied types it may be necessary to have more accounts. The agency sales will be debited in the regular customers' ledger but credited to Sales, Agency at ——. Collections on agency sales will be treated as ordinary collections. When merchandise is shipped from the home office to the agency, the debit will be Purchases, Agency at ——, and the credit will be to Purchases. When agency expenses are met the debit will be Expenses, Agency at ——, and the credit to Vouchers Payable or to Cash. The purchases, sales, inventory, and expense accounts for the agency will be closed periodically into Profit and Loss, Agency at ——, to show the results of the agency operation, and this account will be closed into Profit and Loss.

This simple accounting is perfectly sufficient for the purpose; no elaboration is necessary.

In case business is done through independently owned agencies, one account may be kept for each agency and treated as a consignment out account. If, however, it is desired that the books show the detail of business through such agencies, several methods are available. During each period the agency may be debited with the cost of goods shipped to it and expenditures made on its behalf, and credited with remittances and expenditures made by it on behalf of the principal as if the agency were a consignee. In closing the books, each agency may be debited and Agency Sales credited with the amount of its sales; each agency may be credited and Cost of Agency Sales debited with the cost of the merchandise it sold; each agency may be credited and Agency Expenses debited with agency expenses incurred for the principal, and commissions. There will then be, in the books of the principal, accounts showing the results of operating through agencies, and each agency account will show a balance of the amount due from it to the principal. If the principal owns the merchandise at the agencies, each agency account may be credited and a proper inventory account debited with the value of the goods on hand at the agency, thus separating the amounts actually receivable from agencies from owned merchandise in their possession.

Branch Accounting when Merchandise is Charged at Cost.—The accounting for the branch, when merchandise shipped from the home office is charged at cost to the branch, will be illustrated by an example, and then the principles will be summarized.

1. In starting a branch the home office sends to the branch manager $1,000.00 in cash for expenses.

(a) Entry on branch books:

Cash	$ 1,000.00	
Home Office Current		$ 1,000.00

(b) Entry on home office books:

Branch Current	1,000.00	
Cash		1,000.00

When a branch is opened the home office opens an account, Branch Current, on which to record its dealings with the branch, and the branch opens an account, Home Office Current, on which to record its dealings with the home office.

2. The home office ships to the branch merchandise which it bills at cost, $50,000.00.

(a) Entry on branch books:

Purchases	$50,000.00	
Home Office Current		$50,000.00

(b) Entry on home office books:

Branch Current	50,000.00	
Purchases		50,000.00

Whenever the home office ships goods to the branch it charges the Branch Current account and credits its purchases or inventory account. The branch credits the Home Office Current account and debits its own purchases or inventory account.

3. The home office pays rent for the branch, $2,000.00.

(a) Entry on branch books:

Expenses (or Rent)	$ 2,000.00	
Home Office Current		$ 2,000.00

(b) Entry on home office books:

Branch Current	$2,000.00	
Cash		$2,000.00

Whenever the home office pays or bears an expense for the branch, it charges the Branch Current account and credits cash or some other appropriate account. The branch debits the appropriate expense account and credits the Home Office Current account. Although in this illustration the branch uses a generalized expense account, there is no reason for a branch not having a complete set of nominal accounts adapted to its various incomes and expenses.

4. The branch sells merchandise for $40,000.00.
   (a) Entry on branch books:

Accounts Receivable	$40,000.00	
Sales		$40,000.00

The branch treats its sales just as an independent organization would. No entries are made on the home office books.

5. The branch purchases merchandise on account, $5,000.00.
   (a) Entry on branch books:

Purchases	$ 5,000.00	
Accounts Payable		$ 5,000.00

The branch treats its purchases as if it were an independent organization. The home office makes no entry.

6. The branch collects $35,000.00 from its customers.
   (a) Entry on branch books:

Cash	$35,000.00	
Accounts Receivable		$35,000.00

There will be no entry by the home office.

7. The branch pays its accounts payable, $3,000.00.
   (a) Entry on branch books:

Accounts Payable	$ 3,000.00	
Cash		$ 3,000.00

There will be no entry at the home office.

8. The branch pays some of its expense bills, $2,000.00.
   (a) Entry on branch books:

Expenses	$ 2,000.00	
Cash		$ 2,000.00

There will be no entry on the home office books.

9. The branch remits $30,000.00 to the home office.

(a) Entry on branch books:

Home Office Current	$30,000.00	
Cash		$30,000.00

(b) Entry on home office books:

Cash	30,000.00	
Branch Current		30,000.00

10. The home office pays accounts payable of the branch, $1,000.00.
    (a) Entry on branch books:

Accounts Payable	$1,000.00	
Home Office Current		$1,000.00

(b) Entry on home office books:

Branch Current	1,000.00	
Cash		1,000.00

11. The home office notifies the branch manager that there is $1,000.00 charged against the branch for depreciation of fixed assets furnished the branch by the home office.
    (a) Entry on branch books:

Expenses	$ 1,000.00	
Home Office Current		$ 1,000.00

(b) Entry on home office books:

Branch Current	1,000.00	
Depreciation (or Reserve for Depreciation)		1,000.00

At this point the trial balance of the branch will be as follows:

Cash	$ 1,000.00	
Accounts Receivable	5,000.00	
Accounts Payable		$ 1,000.00
Home Office Current		25,000.00
Sales		40,000.00
Purchases	55,000.00	
Expenses	5,000.00	
	$66,000.00	$66,000.00

12. It being time to close the books, an inventory is taken at the branch, the merchandise on hand being valued at cost, $25,000.00.
    (a) Entries on branch books:

Inventory	$25,000.00	
Purchases		$25,000.00
Sales	40,000.00	
Profit and Loss		40,000.00

Profit and Loss	$35,000.00	
Purchases		$30,000.00
Expenses		5,000.00
Profit and Loss	5,000.00	
Home Office Current		5,000.00

The books are closed as by an independent organization up to the very last step. Net profits are closed into the Home Office Current account because the home office is the owner of the branch, and the home office account is really the proprietorship account on the books of the branch.

(b) Entries on home office books, to take up branch profit:

Branch Current	$ 5,000.00	
Branch Profit and Loss		$ 5,000.00
Branch Profit and Loss	5,000.00	
Profit and Loss		5,000.00

Thus the Branch Current account on the books at the home office is really an investment account, debited with all that is put into the branch and with profits reported by the branch, and credited with whatever is taken out of the branch or with losses reported by it. After closing, the debit balance of the Branch Current account on the home office books should always equal the credit balance of the Home Office Current account on the branch books. If this equality does not exist the accounts should be reconciled and properly adjusted.

The principles at the basis of these entries can be summarized as follows:

1. On the books of the home office an account current is opened with the branch. This account is debited with cash sent to the branch, merchandise shipped to the branch, expenses borne or paid for the branch, and profits of the branch. It is credited with remittances from the branch, payments or expenses borne by the branch for the home office, and losses by the branch in operation. Branch profits and losses are taken up by entries in the Branch Current account and in the account Branch Profit and Loss, which is closed into the general Profit and Loss account.
2. On the books of the branch a current account is opened with the home office which is treated like the capital account in a sole proprietorship, being credited with all investments in the branch and all expenses borne or paid on its behalf, and with the branch profits. This Home Office Current account is debited with remittances by the branch to the home office, with expenses or cash outlays borne by the branch for the home office, and with losses in operating the branch.
3. In other respects the branch accounts are kept as if the branch were an independent unit, except that it is not customary for the branch to have accounts for fixed assets, those accounts being on the home office books. It would not be wrong, however, for the branch to have fixed asset accounts.
4. If there are several branches, transfers of value between branches are debited to the home office by the transferor and credited to the home office by the transferee. On the home office books the transferor branch is credited and the transferee branch is debited.

Branch Accounting when Merchandise is Charged at Arbitrary Prices.—If merchandise is charged to the branches at prices other than cost, the accounting is complicated by the element of unrealized profits. This necessitates a technic slightly different from that developed in the preceding section at three points: (1) when goods are shipped from the home office to the branch, (2) when the branch books are closed, and (3) when the branch profit or loss is taken up on the home office books. An illustration will bring out these differences.

1. The home office ships to the branch merchandise which cost $50,000.00, billing the branch $60,000.00.

(a) Entry on branch books:

Merchandise from Home Office	$60,000.00	
Home Office Current		$60,000.00

(b) Entry on home office books:

Branch Current	60,000.00	
Sales to Branches		60,000.00

The home office cannot credit its purchases account, but should set up a memorandum account which will later be reversed. Similarly, the branch should not set up a straight purchases account, but should establish a memorandum account.

2. The branch sells goods for $55,000.00.

(a) Entry on branch books:

Accounts Receivable	$55,000.00	
Sales		$55,000.00

No entry on books of home office.

3. The branch collects $50,000.00 from its customers.

(a) Entry on branch books:

Cash	$50,000.00	
Accounts Receivable		$50,000.00

No entry on books of home office.

4. The branch pays expenses, $5,000.00.

(a) Entry on branch books:

Expenses	$ 5,000.00	
Cash		$ 5,000.00

No entry on home office books.

5. The branch remits to the home office cash, $40,000.00.

(a) Entry on branch books:

Home Office Current	$40,000.00	
Cash		$40,000.00

(b) Entry on home office books:

Cash	40,000.00	
Branch Current		40,000.00

At this point the trial balance on the books of the branch will be:

Cash	$ 5,000.00	
Accounts Receivable	5,000.00	
Home Office Current		$20,000.00
Sales		55,000.00
Merchandise from Home Office	60,000.00	
Expenses	5,000.00	
	$75,000.00	$75,000.00

6. The inventory, at prices billed from the home office, is $7,500.00. The closing entries will be:

(a) Entry on branch books:

Sales	$55,000.00	
Home Office Current	2,500.00	
Merchandise from Home Office		$52,500.00
Expenses		5,000.00

(b) Entry on home office books:

Branch Profit and Loss	2,500.00	
Branch Current		2,500.00

7. These entries take up the apparent loss on the books of the branch and the home office. But it is clear that there will have to be an adjustment on the home office books for the unrealized profit in the branch inventory and for the excess of the valuation above cost in the account Sales to Branches. This adjustment will be:

(b) On home office books only:

Sales to Branches	$60,000.00	
Purchases		$50,000.00
Branch Profit and Loss		8,750.00
Reserve for Unrealized Profit in Branch Inventory		1,250.00

This entry eliminates the memorandum account and sets up a reserve against the branch account equal to the unrealized profit in the branch inventory. The last step is the closing of the Branch Profit and Loss account.

Branch Profit and Loss	$ 6,250.00	
Profit and Loss		$ 6,250.00

The billing of goods to branches at arbitrary prices makes necessary the following changes in the methods of accounting as developed in the preceding section:

1. On the branch books an account has to be opened under a caption like Home Office Merchandise, Purchases from Home Office, or something similar, to which the receipts of merchandise from the home office are charged at the billed prices, which are inflated prices. The branch office can take its inventory only at billed prices. It is therefore of no value for the branch to open a profit and loss account; so its nominal accounts are therefore closed directly into the Home Office Current account. This means that the Home Office Current account, as a proprietorship account, is deflated except for the amount of the inflation of the closing inventory of the branch. No attempt is made on the books of the branch to correct this overvaluation, because the branch manager is ignorant of the amount of inflation.
2. On the books of the home office there is opened an account Sales to Branches, or Shipments to Branches, or Branch Merchandise, which is credited with the merchandise shipped to the branches at the billed prices. The home office must keep a record of the amount of inflation in the billing, which may be at sales prices or at purely arbitrary amounts. When the profit or loss as reported by the branch is taken up, there is known to be an element of error in the figures. This error is adjusted by debiting the memorandum account, Sales to Branches, for its entire balance and crediting purchases for the cost value of the goods shipped to the branch, crediting Reserve for Unrealized Profit in Branch Inventory for the amount of the inflation in this inventory, and crediting or deb-

iting Branch Profit and Loss with the amount necessary to balance this journal entry. The Branch Current account is thus left at its erroneous value, but the reserve for unrealized profit in the branch inventory is really a valuation account for the branch current account.

The question arises why goods are billed to branches at arbitrary prices. This is done in order that the branch managers may be kept in ignorance of the branch profits, and may be unable to betray merchandise costs to outsiders. Sometimes, as in chain stores, the merchandise is billed to the branches at selling prices. This greatly simplifies the accounting and the taking of inventory at the branch. It makes it possible to hold the branch manager responsible for just so much either in cash or in merchandise. If prices vary, however, new complications arise. Therefore, unless there is some real gain in keeping the branch manager ignorant, it is ordinarily better to charge goods to branches at cost.

Consolidation of Home Office and Branch Statements.—Although it is necessary to know just what profit or loss arises from each branch, it must not be forgotten that the organization is a unit and that statements should show the balance sheet and the operations for the business as a whole. There are several possible forms of preparing working papers for consolidating the operations of the home office and the branches, one of which is given in Figure 68. The trial balance of the home office and that of the branch are laid out in parallel columns. In the adjustments column are placed not only the adjustments ordinarily made in closing books, but also the eliminations of relations between the branch and the home office. The branch is the one whose trial balance is given in the preceding section. The adjustments are as follows:

(a) To eliminate against each other Sales to Branches on the books of the home office and Merchandise from Home Office on the branch books.

(b) To eliminate against each other the Branch Current account on the home office books and the Home Office Current account on the branch books.

(c) To set up the inventory. The inventory of merchandise at the home office at cost is $53,750.00. The branch inventory at billed prices, it will be remembered, was $7,500.00, of which one-sixth or $1,250.00 was found to be unrealized profit, leaving the value at cost, $6,250.00.

The exact form of the working paper may be varied to suit the particu-

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CONSOLIDATED WORKING PAPER
HOME OFFICE AND BRANCH

	Home Office	Branch	Adjustments		Profit & Loss		Balance Sheet	
			Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Debits								
Cash	20,000.00	5,000.00					25,000.00	
Accounts Receivable	60,000.00	5,000.00					65,000.00	
Purchases	300,000.00			(c) 60,000.00	240,000.00			
Merchandise, Home Office		60,000.00		(a) 60,000.00				
Branch Current	20,000.00			(b) 20,000.00				
Expenses	60,000.00	5,000.00			65,000.00			
Inventory			(c) 53,750.00				53,750.00	
Branch Inventory			(c) 6,250.00				6,250.00	
	460,000.00	75,000.00						
Credits								
Accounts Payable	40,000.00							40,000.00
Home Office Current		20,000.00	(b) 20,000.00					
Sales to Branches	60,000.00		(a) 60,000.00					
Sales	260,000.00	55,000.00				315,000.00		
Financial Income	2,000.00					2,000.00		
Capital Stock	50,000.00							50,000.00
Surplus	48,000.00							48,000.00
	460,000.00	75,000.00	140,000.00	140,000.00	305,000.00	317,000.00		
Profit to Surplus					12,000.00			12,000.00
					317,000.00	317,000.00	150,000.00	150,000.00

FIGURE 68

lar situation. From these work sheets the statements of the business may be constructed.

Adjustments for Foreign Exchange.—When a branch is maintained in a foreign country the accounting is complicated by the fluctuations in the rate of exchange—the price of the standard monetary unit of one country in terms of the standard monetary unit of another. For example, the eagle of the United States, the ten-dollar gold piece, contains 232.2 grains of pure gold. Since the unit of measurement is the dollar, it is 23.22 grains of pure gold that is the standard monetary unit in the United States. The English pound sterling contains 113.0016 grains of pure gold. What is called the "par of exchange" is 113.0016 ÷ 23.22, or 4.8665, which means that there is as much pure gold in one pound sterling as in 4.8665 dollars of the United States. An owner of a newly coined English pound sterling could take it to an American mint and receive $4.8665. But the cost of carrying large shipments of coins from English to American mints is approximately 0.5 per cent of their value. For this reason, an American who has a bill to pay in Great Britain would be willing to pay as much as $4.886 per pound sterling for drafts on British banks, and one who has claims would be willing to accept as little as $4.845 for his own drafts on his British customers, rather than bear the expense of exporting or importing pounds. These two figures are called the "gold points," for in normal times if the price of drafts on London rises above $4.886 per pound sterling American bankers export gold to England for deposit in English banks to be drawn against by the Americans. Similarly, if the price of drafts on London falls below $4.845 per pound sterling, British bankers tend to ship gold to their American correspondents. In time of war or of financial stringency, however, the rates of exchange may vary far beyond normal range, as they did during the World War and the recovery from it. These gold points depend for their effectiveness upon the absolute freedom of movement of gold across national borders.[1] Moreover, the rate of exchange varies, depending on what is purchased, because "cables," sight drafts, and sixty-day bills sell in the same market at different rates on account of the element of discount.

It is not the purpose of this section to explain the variations in the rates at which drafts on a foreign country may be purchased and sold, but to show how these variations in exchange rates are handled in accounting for foreign branches. The home office will, of course, keep its accounts in the currency of the home country, and the foreign branch will maintain its records in the currency of the country where

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[1] Since the above was written, England has suspended the gold standard "temporarily."

it is located. When there are dealings between the home office and the foreign branch and when the branch profit has to be taken up at the end of the period, the currency of the country in which the branch is situated must be converted into terms of the currency of the home country. The rules for this conversion that have been quite generally accepted are as follows:

1. Remittances from branch to home office or *vice versa* are converted at the rate of exchange at the time of the remittance.
2. At closing time, when the results of the branch trading are to be incorporated in the home office books:
   (a) Fixed assets on the branch trial balance are converted at the rate prevailing when they were acquired, or at the average rate during the time of their acquisition if they were constructed.
   (b) Current assets on the branch trial balance are converted at the rate of exchange prevailing as at the date of the trial balance.
   (c) Fixed liabilities on the branch trial balance are converted at the rate prevailing when the liabilities were incurred.
   (d) Current liabilities on the branch trial balance are converted at the rate of exchange prevailing as of the date of the trial balance.
   (e) Nominal accounts are converted at the average rate of exchange during the period since the last closing of the books.
   (f) The home office control account is converted at the rate of equivalence between it and the branch office control account, provided these accounts have been reconciled and adjusted for any discrepancies that may have been disclosed.
3. This conversion of different items in the branch trial balance at different rates usually results in inequality of the debit and credit sides of the trial balance expressed in the currency of the home country. If the credit side of the converted trial balance is larger, an amount sufficient to balance is inserted on the debit side under the caption Loss from Exchange Fluctuations. If the debit side of the converted trial balance is larger, a balancing figure is inserted on the credit side under the title Profit on Exchange Fluctuations. This profit or loss is quite properly considered part of the profit or loss from operating a foreign branch. Sometimes this profit or loss is carried in a reserve account rather than being closed into cur-

rent profit and loss, on the theory that the gains of some years will just about counterbalance the losses of others. On the whole, it is usually better to accept the profit or loss on exchange fluctuations at once, than to use the reserve.

CONVERSION OF TRIAL BALANCE OF BRITISH BRANCH

WORKING PAPER

	Trial Balance Pounds		Rate of Conversion	Converted Trial Balance	
Home Office Control		£50,000	4.860		$243,000.00
Remittance Account	£40,000			$194,200.00	
Accounts Receivable	10,000		4.855	48,550.00	
Accounts Payable		5,000	4.855		24,275.00
Cash	10,000		4.855	48,550.00	
Inventory, Merchandise	4,000		4.855	19,420.00	
Furniture	2,000		4.870	9,740.00	
Sales		71,000	4.849		344,279.00
Cost of Sales	50,000		4.849	242,450.00	
Expenses	10,000		4.849	48,490.00	
Loss from Fluctuations of Exchange				154.00	
	£126,000	£126,000		$611,554.00	$611,554.00

FIGURE 69

The working of these rules is illustrated in Figure 69. The first two money columns are the trial balance as submitted by the branch situated in Great Britain. The third money column gives the rates of exchange used in conversion. The fourth and fifth columns are the trial balance in dollars. At the beginning of the period the Branch Control account on the home office books in American dollars was 4.86 times the Home Office Control account on the branch books in English pounds; hence the rate of conversion will be 4.86. The remittances were debited to the Remittance account by the branch at the amount actually paid for drafts on New York, £10,000, while they were credited in the home office to the Remittance from British Branch at exactly the American money received, $194,200.00. Since this figure is available, a remittance account having been kept on each set of books, it is not necessary to tabulate the several remittances and their rates of conversion, although the figures of the British branch would show this in detail if the invoices for the bills of exchange had been preserved. At the date of the trial balance the rate of exchange for "cables" was 4.855. Therefore the current assets and liabilities were converted at that rate. The furniture, however, had been purchased

some years earlier, when the rate was 4.870. This rate is used in conversion because the use of any other would involve profit or loss on exchange fluctuations on an asset that has been held some time and will be used indefinitely. The rate 4.849, at which the nominal accounts have been converted, may have been found by taking the rate for "cables" on the fifteenth of each month in the period and averaging, or by some other good method of finding the mean. When the converted debits are added, their total is found to be $154.00 less than the sum of the converted credits. Therefore $154.00 is set down in the converted trial balance as a Loss from Fluctuations of Exchange.

On the home office books it will be necessary to make an entry to take up the branch profit, thus:

British Branch Control			$53,185.00	
Branch Profit and Loss				$53,185.00
To take up branch profit as follows:				
Sales		$344,279.00		
Less:				
Cost of Sales	$242,450.00			
Expenses	48,490.00			
Loss on Exchange Fluctuations	154.00	291,094.00		
		53,185.00		

It is also necessary on the home office books to close the Remittance from British Branch account into the control account, thus:

Remittances from British Branch	$194,200.00	
British Branch Control		$194,200.00

This will make the balance in the British Branch Control account on the home office books $101,985.00. When the books of the branch have been closed, the Home Office Control will show a credit balance of £21,000. The next time the trial balance of the British branch is converted, the conversion ratio for the Home Office Control account will therefore be 101,985 ÷ 21,000, or 4.85643.

Summary.—In order to increase the sales of a business, and sometimes to open new sources of supply, agencies and branches are organized, there being no absolute line of distinction between the agency and the branch. The branch, however, has greater autonomy than the agency.

In accounting for either agencies or branches it is well to keep separate the operating results of each such office from the trading of the head office.

The accounts of a full-fledged branch are kept as would be those of a sole proprietorship, except that the Head Office Current account takes the place of the personal and capital accounts of the proprietor. On the books of the home office all dealings with the branch are recorded in the Branch Current account, profits reported by the branch being charged and losses credited to this account.

If merchandise shipped to branches is billed at an arbitrary figure other than cost, the home office credits a memorandum account, Shipments to Branches or Sales to Branches, and debits the Branch Current at the billed price. The branch credits Home Office Current and debits Merchandise from Home Office. In this case a profit and loss account on the branch would be meaningless; therefore the nominal accounts are closed into Home Office Current direct. On the home office books it is necessary, in taking up the profit of the branch, to adjust for the unrealized profit in the branch inventory and to eliminate the account Shipments to Branches.

Although the results of branch trading should be known definitely, it is well to make statements consolidating the balance sheets and operations of the home office and of all of the branches.

If branches are established in foreign countries using other money systems, it is necessary to convert the trial balance of the branch into the currency of the home country before the branch profit can be taken up. This conversion is generally made at rates appropriate for the type of account whose balance is being converted, and usually the converted trial balance does not balance until supplemented by a figure for profit or loss on exchange fluctuations.

QUESTIONS

1. In a textbook on economics, read and report on the chapters dealing with foreign exchange.
2. Look up in the daily paper the current rates quoted for sterling exchange, and explain the differences between the various rates on the same day.
3. Suppose the trial balance of the foreign branch is converted at one uniform rate. Would there still be a profit or loss on fluctuations in exchange? Where would such profit or loss appear?
4. What are the relative advantages and disadvantages of having the branch accounts kept at the branch, at the home office, and in duplicate at both?
5. What are the relative advantages and disadvantages of charging merchandise to the branch at cost, at selling price, and at some purely arbitrary price?
6. Suppose merchandise is billed to the branch at an arbitrary figure by the home office, and that the branch buys some merchandise independently. How would the adjustment for unrealized profit in the branch inventory be made on the home office books?
7. Suppose one branch pays an expense bill of another branch, taking a cash discount for prompt settlement. How would you account for the transaction on the books of each branch and of the home office?

8. Should the Branch Current account appear on the statement of profit and loss or on the balance sheet, and if it should appear on either statement, in what group of accounts would it be placed?
9. Why is it not customary to charge the Branch Current account with fixed assets sent to the branch for its use, although the branch is charged with depreciation of those assets?
10. Suppose a corporation bills goods to its branches at cost plus transportation. When some of these goods are transferred to other branches, they are charged to the recipient branches at cost to the shipping branches, plus transportation. Comment on the plan.

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CHAPTER XVI

REAL ESTATE DEVELOPMENTS

The Activities of Real Estate Development Companies.—Corporations that buy land, develop it, and then sell it are forced to engage in many types of activity. Just what they do depends on the nature of the project. The development may consist merely in procuring land near a city, dividing it into lots, and selling them; but such an enterprise ordinarily entails also the building of streets and sidewalks, grading and draining, and constructing sewers. Sometimes it is necessary to pay for the installation of water mains, gas pipes, and other utilities. If the development is in certain cities, it is frequently necessary to erect houses on the lots. Even in the suburbs it is sometimes a great help in selling most of the lots if some houses are constructed, furnished, and inhabited. Some real estate companies aim to derive their principal profits from the construction phase.

The developers of a cemetery have problems of layout and beautification, of effective fencing, and of provision for "perpetual care" of the property in general and of lots in particular. They cannot count on selling their land as rapidly as can the owners of residence subdivisions, and their unit of sale is smaller. The creation of a factory district may entail the construction of spur tracks or of wharves, the provision of homes for workmen, and even the gifts of sites for schools, libraries, and other public buildings. Other companies may develop agricultural regions by the provision of drainage or irrigation; in either type ditches have to be dug to take care of the flow of water, and, in the case of the irrigation projects, storage reservoirs must be erected unless it is possible to buy rights to withdraw water from streams of adequate flow.

Such varied problems of development require, of course, somewhat different details in the systems of accounting, but the same principles apply to all. These principles will be developed with particular regard to the creation of a real estate subdivision on which houses are erected for sale on a deferred payment or contract plan. The modifications necessary for other types of development can be easily worked out by the student confronted with a practical particularized problem.

The Acquisition of Land.—When the real estate company purchases a tract of land to develop, the major problems are financial and economic rather than accounting in nature. The debit may be to Unimproved Land and the credit to Cash, or to Cash and to Mortgage Payable. If there are several projects, it may be wise to have an unimproved land ledger with a separate account for each tract. The cost of the land includes, in addition to the purchase price, the legal fees for passing upon the abstract and determining title, delinquent taxes settled, and mortgages assumed or given. Sometimes other outlays are necessary, such as the demolition of old structures, suits to quiet title, and title insurance premiums. The mortgage contract should be such as to allow the sale of lots to purchasers free from encumbrance. Such contracts are often drawn so that when the lot is sold, the real estate company is able to pay to the holder of the mortgage an amount somewhat greater than the share of the debt falling upon that particular lot by proportioning either according to area or according to asking prices. Thus the entire mortgage may be paid off before all of the lots have been sold.

Improvement of Land.—Improvement of the land may begin as soon as it is acquired, or it may be postponed for considerable periods in order that the city may grow out to the new subdivision. Holding the land too long, however, is often quite hazardous, for interest, changes in transportation facilities, and accumulations of taxes paid may eat up all of the profits gained through the unearned increment. From the accountant's point of view the expenditures for the improvement of the land are investment. Among the items that may thus be charged are surveying and platting, building roads and sidewalks, installing utilities, grading and parking, landscaping, a share of the overhead expense of the development company, and whatever may properly be deemed an expenditure that enhances the value of the tract. If the city paves either streets or sidewalks, the special assessments are added to the land values even though the credits are to liability accounts, for municipal improvements are frequently payable over a term of years, constituting liens on the properties benefited. Although some accountants advocate charging taxes paid to deferred expense accounts, other weighty opinion is in favor of capitalizing them up to the time when the land is placed on sale. If the land can be given a term of exemption from taxation, as is sometimes the case with irrigation, drainage, and cemetery projects, the proper legal steps should be taken to insure such a concession. It may be that the improvements have not been completed by the time the lots are offered for sale, and hence that the cost of the land is not fully determined. In such a situation the expense of completing the development may be estimated carefully and a journal entry made debiting Unimproved Land and crediting Reserve for Improvements to Land. It is better to make this reserve too large than to have it insufficient. If there turns out to be an excess, it can be removed from the reserve eventually and credited to Subdivision Lots.

As soon as the improvement has been finished or has approached such completion that the lots may be placed on sale, the land should be removed from the Unimproved Land Account by an entry crediting that account and debiting the controlling account, Subdivision Lots, specific debits being made to an account opened for each lot in the subsidiary ledger. The lot accounts should be charged at cost, which means that the cost of the entire tract, including streets and parks, should be considered as the cost of the lots to be offered for sale. If any part of this cost, even the amount estimated as necessary to finish the development, is omitted, the true profit on the sale of each lot will not be revealed by the accounts, and there is danger of inviting loss. The basis of this distribution of cost is the asking price for the lots. For example, suppose that the tract cost $100,000.00, and that $200,000.00 has been spent on the improvements. The plat shows 1,000 lots that are priced at $300.00 each, 500 lots at $500.00 each, and 50 lots at $1,000.00 each. The total asking price is $600,000.00, or twice the estimated cost. Therefore, the cost of each of the $300.00 lots can be entered as $150.00, the cost of each $500.00 lot as $250.00, and that of each $1,000.00 lot as $500.00. The formula for valuation of the lots on the subdivision lots ledger could be expressed thus: Divide the total cost of the land and improvements by the total asking prices of the lots to obtain the percentage of cost to asking price as a whole; then multiply the asking price of each lot by the percentage so calculated to obtain the cost of that lot. If the lots have been divided into classes with uniform prices for each class, these calculations are not at all onerous. Another way of achieving the same result is to charge to the account of each lot that percentage of the total cost of the improved tract that the asking price of the lot is of the asking price of all the lots together.

Some accountants object to this method of determining the cost of the lots. One of the proposed alternatives is the distribution of the cost on the basis of area. For instance, the cost of the entire subdivision as improved may turn out to be $.06 per square foot. The cost of a business plot on a good corner, with a fifty-foot frontage on the main street and one hundred feet on the secondary street, will then be $300.00. This is one of the lots marked for sale in the preceding paragraph at $1,000.00. But one of the least desirable of the residence lots, priced at $300.00 and having dimensions 50 by 100 feet, would also have cost $300.00. The sale of such a lot would be achieved at a bookkeeping loss, while the business plots would yield higher profits than normal. Since location is the prime determiner of land value, and since the presence of grown trees and the contour of the surface are highly important secondary factors in determining the value of residence properties, it appears that not areas but carefully estimated selling prices are the best criteria of costs of lots.

From the time that the entry has been made debiting Subdivision Lots and crediting Unimproved Land, no further expenditures on the land itself may ordinarily be capitalized. There are, however, exceptions to this rule. Outlays allowed for in the provision of the Reserve for Improvements to Land are capitalized by being debited to that account. Moreover, further improvements may be made and debited to the particular lots affected. For example, the paving of one street, after the lots have been offered for sale, may be charged to the lots along that street.

Erection of Buildings.—If the original plan is to put structures on all or many of the lots, it will be advisable to open a subdivision construction ledger, with an account for the construction on each lot on which building is undertaken. To these accounts will be charged the exact costs of the particular buildings. In case individually planned houses are erected on the lots, the accounts will have to be distinctly differentiated from the start. If, however, rows of similar dwellings are erected, it may be simpler to find the cost of building the entire row or block, and divide this cost by the number of houses, charging each construction account with its share. The accounts in the subdivision construction ledger can then be debited also with special individualizing features placed on particular houses. Included in the cost of construction are, of course, the outlays for labor and material. Other elements of this cost are architects' fees, supervision of construction, office overhead, depreciation on equipment and tools, liability, fire, and tornado insurance during construction, interest on mortgages and taxes during construction, building and other permits, and any other outlays properly attributable to the cost of erection.

As each building or group of buildings is completed, an entry is made crediting the particular account in the subdivision construction ledger, and debiting the correct account in the subdivision lots ledger. (Or, if the land has not as yet been transferred from Unimproved Land, the entry may debit a particular lot account, or group of lot accounts, in an improved real estate ledger, the credits being to the accounts in the subdivision construction ledger and to Unimproved Real Estate.) When such entries have been made, each lot and its building is represented by a separate account in a subsidiary ledger at the cost of land and building. Expenditures incurred in selling the real estate should be charged to operations.

The Sale of Lots.—There are two frequently used plans for the sales of lots. What is generally known as the "contract plan" involves an arrangement whereby the customer enters into an agreement with the real estate company to make periodic payments somewhat resembling rent. When the last payment has been made the title to the real estate is turned over to the purchaser. This plan may be varied by the stipulation that the transfer of title is to occur after the making of a definite number of periodic payments. The advantage of the contract plan to the real estate company is the absence of the need of foreclosing a mortgage in order to regain possession of the property. For this privilege the company sacrifices the dubious right to obtain judgment against the customer who ceases to make his payments. Ordinarily, but not always, the person who defaults his installments is possessed of so little property that a suit is not worth while. The customer's advantage from the contract plan is that he can withdraw at will by ceasing payments, but he withdraws at the loss of all the deposits he has made—they belong to the company. Many contracts, however, are so drawn as to be binding on the purchaser and to give the selling company the right to sue. Moreover, the company often protects itself by requiring a considerable initial payment. When a contract with a customer is signed, the company should make an entry debiting a personal account in the contracts receivable ledger and crediting Land Sold under Contract for the cost of the real estate involved and also crediting Unearned Profits on Contract Sales for the profit margin. The account of the particular parcel of land must be marked in such a way as to prevent its sale on another contract, even though it is not yet technically sold. The customer's account in the contracts receivable ledger should be on a form that provides for debits with the contract price, with improvements made at the customer's order, with interest, and with other proper charges. There should be room in the heading for summarizing the contract, with space for such items as the name and address of the customer, the number of the lot on the official plat, the terms of the agreement, the file number of the abstract, the mortgage to be assumed, if any, and other pertinent data. The payments by the customer are credited to his account and debited to cash. Whenever the books are closed there should be an entry debiting Unearned Profits on Contract Sales and crediting Profit and Loss for that proportion of the unearned profits that the payments received during the period bear to the total payments originally called for by the contracts on which the payments were made. If contracts are forfeited, the account Land Sold under Contract must be debited the full amount of the original credit, the Unearned Profits on Contract Sales must be debited the amount

remaining on the particular contract, the customer's account in the contracts receivable ledger must be cleared by a credit, and enough to balance the entry must be credited or debited to Profit and Loss on Forfeited Contracts. Whenever a customer pays his contract in full, there must be a debit to Land Sold under Contract and a credit to the particular lot account in the subdivision lots or the improved real estate ledger, at the cost of the real estate. At this point the deed will be surrendered to the customer.

Frequently the real estate company will wish to realize on its contract at once, and in this case the contract may be sold to a finance company. When the contract is sold, three entries will be necessary. The first will debit Land Sold under Contract and credit the particular account in the subdivision lots or in the improved real estate ledger, the title of the land being turned over to the finance company. The second entry will credit in full the customer's account in the contracts receivable ledger; the debits will be to Cash for the amount received from the finance company and to Unearned Profit on Contract Sales for an amount necessary to balance the entry; finance companies buy contracts only at a discount in ordinary cases. A third entry may be made either when the contract is sold or when the books are next closed; any balance from the contract in the account Unearned Profit on Contract Sales arising from the particular contract will be transferred to Profit and Loss.

Ordinarily a customer will not contract for land that is mortgaged. Often, therefore, when contracts are entered, a mortgage is paid in part and a release for the particular property is obtained, in order that clear title may be passed whenever payments have been completed. Or the customer may assume the mortgage and receive credit on his contract. In such a case the customer has to pay the remainder of his contract and the mortgage.

The other method of sale generally in vogue is the transfer of title and taking a mortgage as part payment. This method definitely binds the customer to his payments, and puts the real estate company to the necessity of foreclosing in case these installments are defaulted. Mortgages frequently contain a clause allowing the mortgagee a designated or a reasonable per cent for attorney fees in event of default. If the mortgage system is used, the entry for a sale debits Cash and Mortgages Receivable, and credits the Profit and Loss account and the account for the particular lot in the ledger for subdivision lots or in that for improved real estate. If the mortgage is held it will be recorded in a special mortgage receivable ledger which devotes a page to each such instrument. Of course it may be necessary to pay off enough of the blanket mortgage to release the lot sold, or the purchaser may assume a mortgage on his plot. When the land is sold in this way there is no problem of deferred profits, although there may be foreclosures. Frequently the mortgage is sold at a discount or, if the interest rate is high enough, at par to a finance company or to an individual investor.

Sometimes the real estate company obligates itself to maintain in perpetuity certain parkways or other features of the development. In such a situation, part of the cash taken in from each sale as the lots are sold must be set aside in a maintenance fund. When all the lots have been sold and paid for, this fund is turned over to a board of trustees elected by the owners. Until this transfer is made, the company must carry a liability account equal to the fund, under some such title as Reserve for Perpetual Care. The debit in creating this reserve will be to Profit and Loss.

Operating Income and Expense.—In the preceding section it was shown that the operating income will come directly from sales and from interest in case the land is sold outright and mortgages taken to secure payment. If the land is sold by the contract method, the income comes from interest and from prorating the unearned profits on contracts for the sale of land. These are the only large sources of income, although in addition contract work may be done for customers. Occasionally there are rentals, but these are generally avoided where it is desired to sell the properties.

From the time the development is completed, capital charges must cease. Expenses for administration, for maintenance, and for selling may be heavy, but they may not be deferred. Sometimes these expenses are segregated in an improved real estate operating ledger. These nominal accounts should be closed regularly. Even if a deficit appears, it is not legitimate to defer any further expenditures.

Books of Real Estate Operators.—Organizations conducting real estate operations on a large scale often find it necessary to have a considerable number of subsidiary ledgers. Among these may be Unimproved Land, Subdivision Lots, Improved Lots, Contracts Receivable, Mortgages Receivable, and Mortgages Payable.

Agents who operate real estate properties for the actual owners have to keep a subsidiary owners' and property accounts ledger. Each owner's account is credited with the rents collected for him, cash being debited. The owner's account is debited with outlays upon his property for upkeep, insurance premiums charged against him, and the commissions for the agent's services. Periodically the agent remits what is due the owner, debiting his account with the amount of the

check. If the property operated is an apartment house, the variety of charges against the owner is much greater than if the building is a single-family dwelling.

The agent needs also, although not necessarily as part of the books of account, a rental record on which to list each property on a separate page. In the caption should be shown the name of the owner, the name of the tenant, the monthly rent and its due day, and any peculiarities of the lease. The body of the record page will give space for the date and amounts of rent collected. Although this record is merely a memorandum, it is very important in order that the collections may be made systematically.

Since the real estate agent is also usually the representative of property insurance companies, he will often need to keep an insurance ledger. An account with each client will show as debits the premiums on policies written for that client and as credits his payments or the amounts charged to his account in the owners' ledger. Each line on a properly drawn form will be so arranged as to facilitate showing for the debit the name of the insurance company, the number of the policy issued, the type of insurance, the face of the policy, the rate, and the term of the policy. By means of signals the ledger may act as a tickler, calling attention to renewal dates as they approach.

Summary.—There is a wide variety of real estate development enterprise, but all the developments have common problems of accounting.

The most difficult problem is the distinction between capital and revenue expenditures, the general rule being that only those outlays that add value to the real estate may be capitalized. From the time the improvements have been completed, further charges must not be capitalized.

In accounting for real estate developments, subsidiary ledgers are needed for the improved lots or the improved real estate, for the contracts receivable, and for the mortgages receivable and payable. The profit or loss on each lot must be ascertainable. This creates a problem of determining costs. The costs of the lots are found by distributing the total cost of the development according to the asking prices of the lots.

Sales are often made by the contract method, which involves withholding the deed until at least a certain proportion of the contracted payments have been made. Such sales are accounted for as installment sales, the profits being deferred. When sales are for cash and mortgage, they may be treated as outright sales.

Contracts receivable and mortgages receivable are often sold by the development company in order that it may obtain cash promptly to pay off its own mortgages payable or to distribute as profits. Often the sale of these contracts involves a considerable discount.

The real estate agent has to keep a subsidiary ledger for his accounts with owners and properties, and usually an insurance ledger.

QUESTIONS

1. Suppose a water company requires from a real estate development company a "deposit" to cover the cost of laying the mains, with the understanding that the deposit will be returned when there are a certain number of water users in the subdivision. How will you account for the deposit on the books of the real estate company?
2. Some accountants hold that it is wrong to capitalize, by debits to Unimproved Land, the taxes and mortgage interest on the land during the period it is held for development. They suggest "deferring" the taxes and interest. What do they mean, and how is their plan accomplished on the books?
3. If a cemetery company sells lots only for cash and sets aside half of the sale price of each lot to provide perpetual care, how would you account for the fund so established, for its earnings, and for the expenditure of these earnings?
4. Suppose a real estate company develops a manufacturing subdivision. It gives free land to a limited number of factories, providing switching facilities for them. After laying out streets, the rest of the land is divided into lots which are sold for business and residence sites. How would the cost be distributed over the factory sites which are to be given away and the lots which are to be sold?
5. A land development company is opening a new subdivision. It gives some of the best lots to influential citizens of the city on condition that they build on these lots. What would be the method of accounting for such gifts? What values would be used?
6. After a real estate company has acquired a tract for development, its title is attacked in the courts. The suit is finally settled by the payment of cash to the plaintiffs for quit claim deeds to the property. How would you account for the expenses of the suit and for the cash settlement?
7. Sometimes when land is sold the deed is held in "escrow." What is meant?
8. A real estate development company gives to each of its purchasers a policy insuring his title to the lot he buys. These title insurance policies are issued by a title guarantee company. What is the purpose of furnishing the policies? How would you account for the transaction?
9. Describe the ledgers and the books of original entry needed by a real estate company which develops only one subdivision.
10. What are the accounting problems peculiar to the real estate agent? How does he solve them?

REFERENCES FOR SUPPLEMENTARY READING

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CHAPTER XVII

FACTORY ACCOUNTING

The Nature of Factory Accounting.—In the preceding chapters of this text there have been several references to the need of an adequate system of cost accounting in order that the books of manufacturing concerns may be closed accurately and their statements present the facts. Although it is impossible in the compass of this volume to describe accounting for costs, it is well worth while to present the fundamental principles and to indicate some of the important methods in use. The problem centers in the determination of the cost per unit produced. The unit may be an article fabricated for stock or it may be something made on special contract for a customer. Unless such costs are known with a considerable degree of exactness, the values of inventories of finished goods and of goods in process cannot be stated with precision; statements of profit and loss and balance sheets are apt to be unreliable; the gains or losses on particular production contracts or on types of products are uncertain, and the fixing of prices is unintelligent. For these reasons it is difficult to exaggerate the significance of cost accounting.

Specific Order Cost Systems.—Adequate cost accounting systems are all variations of two types which are known as "process cost accounting" and "specific order cost accounting." The central problem in the specific order systems is the determination of the cost of each particular production order, whether the goods are made especially for some individual customer or produced for stock. Even concerns which fabricate in large quantities on standardized patterns may issue factory orders for the production of various lots of these commodities, and many maintain records of the cost of manufacturing each lot.

The cost of a production order is segregated on a "job sheet" or a "cost sheet" or a "production order," such as Figure 70. From day to day this form is posted with the amounts of materials issued and the value of the labor expended upon it. The information necessary for this posting is obtained from stores requisitions similar to Figure 71 and from time reports which may be like Figure 72. Thus on any day the production order sheet will show the total of the material and labor expended on the job.

The production order sheet is charged with its quota of manufacturing expense at some predetermined rate at the end of each month

PRODUCTION ORDER No. ____
Customer ____ Product ____ Quantity ____
Address ____ Date ____ Finished ____

Direct Labor									Cost Summary		
Department D			Department E			Department F					
Date	Hours	Amount	Date	Hours	Amount	Date	Hours	Amount			
									Materials		
									Labor		
									Dept. D		
									Dept. E		
									Dept. F		
									Total		
									Mfg. Expense		
									Dept. D		
									Dept. E		
									Dept. F		
									Total		
									Cost of Sales		
									Finished Goods		

Applied Manufacturing Expense									Materials Used		
Department D			Department E			Department F					
Date	Hours	Amount	Date	Hours	Amount	Date	Hours	Amount			

FIGURE 70

during the course of fabrication or at the time of completion of the job or lot. The methods of apportioning manufacturing expense are varied; all depend, however, on some measurable factor in production, such as (1) the direct labor hours spent on the particular job, (2) the cost of direct labor, (3) the cost of materials used, (4) the cost of labor and materials combined, (5) the number of hours machinery is employed, (6) the number of units produced, or (7) the amount of work completed measured on a system of weights or points. The method of calculating three of these rates is illustrated in Figure 73. Columns II, III, IV, and V are made up of data from the past period or from several past periods, such as the most recent twelve months. The rates in columns VI, VII, and VIII are found by dividing the departmental manufacturing expense by the departmental direct labor hours, by the departmental payroll for direct labor, and by the departmental machine hours respectively. Similarly, if the manufacturing expense were to be distributed on the basis of material costs, or of prime costs, it would be necessary to divide the departmental manufacturing expense by the material costs incurred in the department, or by the prime costs.

STORES REQUISITION

Date__________ Credit__________

Material__________ Debit: Production Order__________

Quantity__________ Standing Order__________

Unit Price__________

Amount__________

Please deliver above to __________

N.B. Use a separate requisition for each kind of material wanted.

FIGURE 71

Date__________ Name__________ Clock No.__________

A.M. IN____ OUT____ P.M. IN____ OUT____ Overtime IN____ OUT____

Kind of Work	Prod't'n Order	Department	Units Finished	Time			Rate	Amount	
				Start	Stopt	Used		Direct	Indirect

FIGURE 72

DAILY TIME REPORT

SOME METHODS OF COMPUTING RATES FOR THE APPLICATION OF MANUFACTURING EXPENSE TO PRODUCTION ORDERS

I	II	III	IV	V	VI	VII	VIII
					Manufacturing Expense per		
Department	Direct Labor Hours	Direct Labor Payroll	Machine Hours	Total Mfg. Expense	Direct Labor Hour V ÷ II	Dollar of Direct Labor V ÷ III	Machine Hour V ÷ IV
D	150,000	$225,000	60,000	$240,000	$1.60	$1.067	$4.00
E	180,000	180,000	45,000	198,000	1.10	1.10	4.40
F	60,000	120,000	18,000	144,000	2.40	1.20	8.00

FIGURE 73

When these "predetermined rates" have been computed it is a simple matter to calculate the cost of any particular job. As an illustration, let it be assumed that the record of Production Order #6025 shows:

Direct Material		$168.00
Direct Labor		
Department D 20 hours @ $1.50	$30.00	
Department E 16 hours @ 1.00	16.00	
Department F 30 hours @ 2.00	60.00	
		106.00
Prime Cost		$274.00

If the manufacturing expense is distributed on the basis of direct labor hours at the rates developed in Figure 73, the cost of this order will be computed as follows:

Production Order #6025

Direct Material			$168.00
Direct Labor			
Department D	20 hours @ $1.50	$30.00	
Department E	16 hours @ 1.00	16.00	
Department F	30 hours @ 2.00	60.00	
			106.00
Manufacturing Expense			
Department D	20 hours @ $1.60	$32.00	
Department E	16 hours @ 1.10	17.60	
Department F	30 hours @ 2.40	72.00	
			121.60
Total Cost			$395.60

A similar calculation to show the cost of this job if the manufacturing expense is distributed on the basis of the direct labor payroll would be:

Production Order #6025

Direct Material			$168.00
Direct Labor			
Department D	20 hours @ $1.50	$30.00	
Department E	16 hours @ 1.00	16.00	
Department F	30 hours @ 2.00	60.00	
			106.00
Manufacturing Expense			
Department D	32 × $1.067	$34.14	
Department E	16 × 1.10	17.60	
Department F	60 × 1.20	72.00	
			123.74
Total Cost			$397.74

The choice of the method of distributing manufacturing expense should depend upon particular conditions in the department. In general, the manufacturing expense is incurred for the purpose of keeping the direct labor at advantageous employment. Therefore it has been found wise in many plants to fix the distribution rates on a basis of direct labor hours. The distribution on the basis of direct payroll ignores the fact that the lower-paid laborers usually require the most supervision; this method is obviously inequitable if piece rates are paid for labor, because it will overburden with manufacturing expense the work of the fastest operatives. It seldom happens that there is any good reason for distributing overhead to jobs on the basis of materials used; the exceptions are mostly cases in which the direct labor is of relatively small importance compared to materials. The machine hour rates are of two types, general rates covering different types of machinery, and specific rates. The general rate might be found as in Figure 73; the specific rate might be determined by finding for each type of machine all the costs of operation for a period and dividing this by the number of hours normally run in that same time. These costs would include specific charges for depreciation, repairs and upkeep, power, space occupied, and services utilized. Machine rates found in this second way may be very accurate and an excellent basis for measuring costs. Sometimes the machine rate includes the wages of the operatives, there being no separate charge for direct labor. Distribution of manufacturing expense on the basis of units completed or amount of work done is possible only when production is devoted to closely similar articles, uniform from period to period, and when there is some readily available method of measurement. Such a combination of conditions is very rare. Since each of these types of rate has peculiarities, it is frequently found that the basis of distributing manufacturing expense differs from department to department in the same plant.

No.______ STANDING ORDER for Department______ Month of____ 193__

Date	Indirect Labor	Indirect Material	Repairs Upkeep	Fixed Charges		Miscellaneous	Spoiled Work	Apportioned

FIGURE 74

The Determination of Departmental Expenses.—The distribution of manufacturing expenses to the production orders assumes that there has first been a division of these costs among the several departments. There are two types of departments: (1) service departments, which perform work necessary to production but do not actually manufacture goods; and (2) producing departments, where the fabrication actually takes place. Therefore, before specific orders can be charged with their pro ratas of manufacturing expense, the producing departments must be charged with their share of the costs of services. The underlying principles are not difficult.

During each period all the manufacturing expenses may be charged to one manufacturing expense account as they are journalized or vouchered. But there will be a duplicate record of each expense on the appropriate "Standing Order," Figure 74. The standing order is a sheet or ledger page on which the expenses of a department are tabulated in some fruitful classifications. There is one standing order for each department. The day-to-day entries on these standing orders are based on stores requisitions, daily time reports, and carbons of expense vouchers. However, there will be adjustments needed for taxes, insurance, depreciation, and such other items as do not enter regularly and ratably in the current transactions. These adjustments are often made from some such schedule as Figure 75, which has been prepared carefully in advance and which is revised periodically. The departmental items or totals, as shown by this schedule, will be entered in the Fixed Charges columns of the appropriate standing orders. The data will be incorporated in the general books by some such entry as this:

SCHEDULE OF FIXED CHARGES ON MONTHLY BASIS

	Department A	Department B	Department C	Department D	Department E	Department F	Totals
Insurance, Fire	$ 25.00	$ 30.00	$ 20.00	$100.00	$ 95.00	$105.00	$ 375.00
Taxes, Property	10.00	12.00	8.00	40.00	37.00	43.00	150.00
Depreciation							
Building	50.00	60.00	44.00	250.00	75.00	40.00	519.00
Machinery	5.00	15.00	60.00	130.00	115.00	90.00	415.00
Tools	10.00	20.00	10.00	15.00	50.00	70.00	175.00
Expiration of Patents				28.00		2.00	30.00
License to use Patent					50.00		50.00
Service, Blank Engineering Co.			5.00	15.00	15.00	15.00	50.00
Totals	$100.00	$137.00	$147.00	$578.00	$437.00	$365.00	$1,764.00

FIGURE 75

Manufacturing Expense	$1,764.00	
Prepaid Insurance, Fire		$375.00
Taxes Accrued, Property		150.00
Reserve for Depreciation of Building		519.00
Reserve for Depreciation of Machinery		415.00
Tools (or Reserve for Depreciation of Tools)		175.00
Patents		30.00
Accrued Royalties Payable		50.00
Accrued Engineering Service Fees		50.00
To record fixed charges of manufacturing department for the month of ———, 193—, in accordance with the schedule of fixed charges.		

Thus, at the end of any period, the sum of the standing orders will equal the account Manufacturing Expense, and each standing order will present a classified exhibit of the departmental expenses for the period.

The next step is to set up departmental Manufacturing Expense accounts in the general ledger. On the assumption that the Manufacturing Expense account shows a debit balance of $50,000.00 and the standing orders show totals as follows:

Department A	$ 3,000.00
Department B	2,800.00
Department C	7,200.00
Department D	15,000.00
Department E	11,500.00
Department F	10,500.00,

the distribution would be accomplished by the following journal entry:

Manufacturing Expense, Department A	$ 3,000.00	
Manufacturing Expense, Department B	2,800.00	
Manufacturing Expense, Department C	7,200.00	
Manufacturing Expense, Department D	15,000.00	
Manufacturing Expense, Department E	11,500.00	
Manufacturing Expense, Department F	10,500.00	
Manufacturing Expense		$50,000.00
To distribute Manufacturing Expense among the several manufacturing departments in accordance with the amounts shown by their respective standing orders.		

This entry closes the Manufacturing Expense account so that it may be opened again at the beginning of the next month, new standing orders being opened at the same time.

If Departments A, B, and C are for service to the actual producing Departments D, E, and F, it is necessary to close the cost of these service departments into the accounts of the fabricating departments.

Probably at some time or other each of the departments performs some service for each of the others. If the theory of distributing expenses took cognizance of this fact, a complicated set of simultaneous equations would be needed each month, the solution of which would be involved and also lacking in significance. Practical considerations call for a common-sense distribution. Therefore the cost accountant will decide which department serves the others most and apportion its cost; he will then apportion the cost of the department with the next widest field of service, and so on. To make the problem concrete, assume the following facts:

Department	Function	Expenses Current Month	Area Occupied	Number Employees (average)	Horsepower Hours
A	Building Upkeep	$ 3,000.00	500 sq. ft.	7	
B	Personnel	2,800.00	1,000	5	
C	Power and Heat	7,200.00	1,000	10	
D	Manufacturing	15,000.00	3,000	75	300,000
E	Manufacturing	11,500.00	3,000	85	600,000
F	Manufacturing	10,500.00	2,000	30	100,000
		$50,000.00	10,500 sq. ft.	212	1,000,000

Distribution of Service Department Costs

for the month of ———, 193—

	Dept. A	Dept. B	Dept. C	Dept. D	Dept. E	Dept. F
Cost for Month	3,000.00	2,800.00	7,200.00	15,000.00	11,500.00	10,500.00
Distribution of cost of Dept. A on basis of area	3,000.00	300.00	300.00	900.00	900.00	600.00
Distribution of cost of Dept. B on basis of number of employees		3,100.00	155.00	1,162.50	1,317.50	465.00
Distribution of cost of Dept. C on basis of H. P. H.			7,655.00	2,296.50	4,593.00	765.50
				19,359.00	18,310.50	12,330.50

Figure 76

It may be decided to distribute first the cost of building upkeep, Department A, on the basis of the areas occupied by subsequent departments; then, to divide the cost of the Personnel Department, B, on the basis of the number of employees in each of the subsequent departments; and, finally, to apportion the cost of power and heat, Department C, on the basis of the horsepower hours consumed by each of the producing departments during the month. This distribution can be worked out in a table similar to Figure 76.

The entries to make this apportionment may be posted in the General Journal as follows:

Manufacturing Expense, Department B	$ 300.00	
Manufacturing Expense, Department C	300.00	
Manufacturing Expense, Department D	900.00	
Manufacturing Expense, Department E	900.00	
Manufacturing Expense, Department F	600.00	
Manufacturing Expense, Department A		$3,000.00
To apportion expenses of Department A over the other manufacturing departments on the basis of the area occupied by each.		
Manufacturing Expense, Department C	155.00	
Manufacturing Expense, Department D	1,162.50	
Manufacturing Expense, Department E	1,317.50	
Manufacturing Expense, Department F	465.00	
Manufacturing Expense, Department B		3,100.00
To apportion expenses of Department B over the remaining manufacturing departments on the basis of the average number of employees in each.		
Manufacturing Expense, Department D	2,296.50	
Manufacturing Expense, Department E	4,593.00	
Manufacturing Expense, Department F	765.50	
Manufacturing Expense, Department C		7,655.00
To distribute expenses of Department C over the other manufacturing departments on the basis of the consumption of power.		

Of course one compound entry could be made in place of the series of entries. The single compound entry which would be equivalent to the three in the illustration would be:

Manufacturing Expense, Department D	$4,359.00	
Manufacturing Expense, Department E	6,810.50	
Manufacturing Expense, Department F	1,830.50	
Manufacturing Expense, Department A		$3,000.00
Manufacturing Expense, Department B		2,800.00
Manufacturing Expense, Department C		7,200.00
To distribute service department expenses to producing departments according to analysis of distribution of service department costs.		

After these adjustments have been accomplished, the only manufacturing expense accounts open will be those of the producing departments. The service costs distributed will be entered also in the Apportioned column of the standing orders. At this point, the totals of the standing orders will be the amounts which may be divided by direct labor hours, direct labor payrolls, machine hours, or other appropriate bases to determine the rates for applying manufacturing expense to production orders. If it is desired to take the average of twelve months, the standing order totals of each department for twelve months would be added and divided by the chosen base for the same twelve months.

Cost Accounts and Double Entry.—One of the defects of early systems of cost finding was their failure to reconcile estimated costs to the expense accounts kept by double entry. Today it is considered necessary for the cost accounts to "tie in with the general books." A few illustrations will show how this may be accomplished.

ANALYSIS OF MATERIALS ISSUED AND RETURNED TO STORES

for the month of ____________, 193__

Date	Issued			Returned to Stores				
	Requisition No.	Production Orders	Standing Orders	Report No.	Production Orders	Standing Orders	Scrap Material Direct	Scrap Material Indirect

FIGURE 77

It has been noted that the valued material requisition slips are posted either on the production orders or on the standing orders of the departments, depending on whether the material is to enter directly into the product or to be used indirectly in the department. Likewise, these

slips are posted to the issued section of the perpetual inventory records of stores. On the other hand, if some of the materials are returned unused from the factory to stores, the slips on which such returns are reported are posted in red in the production or standing orders (the red to indicate subtraction) and on the receipts side of the stores records (or in the red on the issued side). The stores records generally include "scrap material" accounts to record materials which are not intact, having been partially utilized, but which have value for minor uses or as junk. These requisitions and returned material reports are summarized on appropriate forms, such as Figure 77.

From these material summaries are made journal entries, such as:

Materials in Process	xxxx	
Manufacturing Expense	xxxx	
Stores		xxxx

To record materials issued from ——— to ——— as shown by analysis of materials issued.

Stores	xxxx	
Materials in Process		xxxx
Manufacturing Expense		xxxx

To record materials returned to stores from ——— to ——— as shown by analysis of materials returned to stores.

Such entries bring the control account Stores into agreement with the records in the stores ledger, and charge Materials in Process and Manufacturing Expense with the net values of materials issued for jobs and for indirect purposes respectively.

It has also been noted that postings are made from the daily time reports directly to production orders and to standing orders. From a summary of these reports it is possible to make an entry periodically, such as:

Direct Labor in Process	xxxx	
Manufacturing Expense	xxxx	
Accrued Payroll		xxxx

To record factory payroll accrued from ——— to ———.

This entry sets up an account Direct Labor in Process with a sum equal to the cost of the labor as recorded for the period in the production orders, and charges Manufacturing Expense with the sum of the wages that have been entered in the standing orders. When wages are to be paid, Accrued Payroll is debited and Audited Vouchers credited for the sum to be disbursed.

Finally it has been noted that each production order, at the end of each month as it is finished, is charged with its ratable share of manufacturing expense. An entry is made on the general books debiting Manufacturing Expense in Process and crediting each departmental Manufacturing Expense account. The material for this entry will have been compiled on a form like Figure 78, which summarizes all the manufacturing expense applied to production orders during the month. It should be noted that this entry will follow the entries distributing Manufacturing Expense among the several factory departments and those apportioning the service expenses to the producing departments.

Summary of Applied Manufacturing Expense

for the month of ____________, 193__

Production Order	Department D	Department E	Department F	Department G	Department H	Department I	

Figure 78

Summary of Goods Finished

for the Month of ____________, 193__

Production Order	Materials	Direct Labor	Applied Manufacturing Expense	Total Cost

Figure 79

When the series of entries just described have been completed, there will have been charged net to each of the accounts, Materials in Process, Direct Labor in Process, and Manufacturing Expense in Process, amounts which equal the charges to the several production orders during the period for materials, direct labor, and applied manufacturing expense.

As each production order is finished, it is summarized and the items are entered on an appropriate form, of which Figure 79 is a good type. From the monthly totals in this Summary of Goods Finished is drafted the periodic entry, as follows:

Finished Goods	xxxx	
Materials in Process		xxxx
Direct Labor in Process		xxxx
Manufacturing Expense in Process		xxxx
To charge Finished Goods with cost of goods completed.		

When sales are made, the regular entry debiting Trade Debitors and crediting Sales is placed on the books. But records are kept of the items sold and of their cost so that periodically there may be an entry:

Cost of Sales	xxxx	
Finished Goods		xxxx
To record cost of sales.		

A related entry will debit Finished Goods and credit Cost of Sales with the value of items returned as revealed by a summary.

Thus at every point there are entries on the general books corresponding to those in the stores ledger, the production ledger, the production order sheets, and the finished goods ledger. After each adjustment the three accounts Materials in Process, Direct Labor in Process, and Manufacturing Expense in Process control the production ledger.

Some Vexing Problems.—There are many difficulties which arise in connection with specific order cost accounting. One such problem is raised by the predetermination of the rates of application of manufacturing expense to the specific jobs. Since these rates are based on the experience of past periods, the amounts debited to Manufacturing Expense in Process and credited to the several producing departmental manufacturing expense accounts will seldom exactly equal the debits to these departmental manufacturing expense accounts which distribute Manufacturing Expense on the basis of the standing orders and also distribute the apportioned charges from the service departments. Thus there are likely to be credit balances in some of these departmental expense accounts and debit balances in others. The credit balances represent an "overapplication" of manufacturing expense and the debit balances an "underapplication" to the specific orders. The question is what to do with these balances. In the first place, a special form of Statement of Cost of Sales, similar to Figure 80, may be used; and second, once a year, usually, there will be an adjustment to clear the under- and overapplied expense into Cost of Sales, thus:

Cost of Sales	xxxx	
Manufacturing Expense Department E	xxxx	
Manufacturing Expense Department D		xxxx
Manufacturing Expense Department F		xxxx
To close into Cost of Sales the manufacturing expense under- and overapplied from ——— to ———, as indicated by the balances in the several departmental manufacturing expense accounts.		

There is a basis for criticizing this method of handling the over- and underapplied manufacturing expense, on the ground that a portion of it belongs to the finished goods in stock, and a portion to the work in process. While this criticism is sound in principle, it is not important if the amounts concerned are small. Moreover, there are considerable practical difficulties in apportioning the under- and overapplied manufacturing expense among work in process, finished goods, and cost of sales, and, finally, the large amount of mechanical work involved in such an apportionment is not warranted by the value of the result. In a going concern, if the rates of distribution to specific orders have been worked out carefully, the amounts of under- and overapplied manufacturing expenses are usually insignificant.

STATEMENT OF COST OF MANUFACTURE AND OF SALES
from ——— to ———

Direct Materials		xxxx
Direct Labor		xxxx
Manufacturing Expense Applied		xxxx
Cost of Manufacture per cost record		xxxx
Add: Decrease of Inventory of Finished Goods		
Inventory of Finished Goods Beginning of Period	xxxx	
Inventory of Finished Goods Close of Period	xxxx	
		xxxx
Cost of Sales per cost records		xxxx
Add: Underapplied Manufacturing Expense (Deduct: Overapplied Manufacturing Expense)		xxxx
Cost of Sales (Actual)		xxxx

FIGURE 80

As an alternative, it has been proposed to carry forward to the succeeding period these balances of the departmental manufacturing accounts as deferred expenses or deferred deductions from expense, but such a practice would fail to show the results of each year as an entity. It is therefore usually considered better to close out these differences at least yearly.[1]

A second difficulty is connected with the determination of the departmental rates to be applied to the costs of particular jobs. For example, if the basis is to be direct labor hours, the question is whether to divide the departmental manufacturing expense by the number of hours which might be worked if operation were at full capacity, by the number of hours normally worked, or by some other number of hours. The best solution is probably division by the number of hours normally worked, because ordinarily the manufacturing expense is thus all placed upon the product actually completed. In years of depression, however, allowance should be made for the fact that operation will cover an abnormally small number of hours. Thus the distribution rates will be higher in years of very slack production than in normal years. The general conclusion is that it is usually best to use a normal basis of application of manufacturing expense, but that the rates should be varied to meet unusual conditions in such a way that the entire manufacturing expense for the year can be applied.

One of the most difficult problems in cost accounting is the basis for the distribution of the expenses of the service departments to the other departments. These apportionments should be made by whatever method will allot to each department as nearly as possible its just share of the service costs. There is, however, no such thing as absolute justice, and therefore the bases of apportionment are matters of judgment based upon the best obtainable information and data.

Some service departments aid the individual workers, and their costs should usually be apportioned to other departments on the basis of the number of persons employed. Among these departments are those dealing with employment, employees' welfare, plant restaurants, house organs, and ordinary medical and dental aid.

Other service departments function to keep the work going through the factory, and their expenses are usually distributed on the basis of the total labor hours in the departments served. Among the departments whose costs are apportioned on this basis may be the purchasing, receiving, stores, intra-plant transportation, planning, superintendence, payroll, and cost accounting.

Rent or building upkeep is usually apportioned on the basis of the floor space occupied by the several departments. Maintenance of machinery, equipment, and tools can usually be distributed directly to the departments on the basis of the expenditures made for them. Power costs should be apportioned according to the power used, on the authority of meter readings wherever possible. In case power cannot be metered, the distribution may be based on the estimated horsepower hours used, on the volume of steam used, or on some other available measure of comparison.

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[1] As a matter of procedure, which does not affect the theory concerned, departmental Applied Manufacturing Expense accounts are usually carried, to which are credited the applied expenses, instead of to the departmental expense accounts. Monthly, then, each departmental manufacturing expense account is closed into the corresponding applied manufacturing expense account. Each applied manufacturing expense account is closed into Over- and Underapplied Manufacturing Expense. Over- and Underapplied Manufacturing Expense is closed annually into Cost of Sales.

However, no general statements will suit all conditions.

Report of Spoiled Work

Production Order No.________ Date________

Department	Hours Direct Labor	Amount Direct Labor	Amount Applied Expense	Amount Material Issued	Summary	
					DEBIT	
					Stores	
					Manufact. Expense Dept.	
					CREDIT	
					Materials in Process	
					Labor in Process	
					Manufact. Expense in Process	
Totals					Total	

FIGURE 81

Another problem centers in the handling of spoiled work. The value of the materials spoiled plus the labor and the proportional manufacturing expense applied to this spoiled material, minus salvage value, is usually charged to the department in which the error occurred. Thus an attempt is made to spread the cost of carelessness over all the work passing through the department rather than letting it all fall upon a particular job, the theory being that the error was due to lack of good management in the department rather than to any characteristics of the job concerned. Figure 81 illustrates a possible form for reporting spoiled work so as to credit the particular job on which the mishap occurred. Postings from the reports themselves are made to the proper accounts in the stores ledger and, in red ink, to the production order sheets; and monthly journal entries will be made from summaries to incorporate the data in the general books.

Still another troublesome question is accounting for the wages paid to men while they are idle. In general it is wise to charge such wages in a special column on the standing order of the departments affected, thus making idle time a part of the departmental expense. The important point, however, is to make an analysis of its causes, to show what costs are incurred by employment losses from such things as waiting for materials or orders, breakdown of machinery, power off, and so forth. These analyses should be the basis of investigations to discover how such time losses may be eliminated or at least reduced to a minimum.

Analysis of Manufacturing Expense
for the year ended ________

	Department A	Department B	Department C	Department D	Total
Indirect Labor					
Idle Time					
Indirect Material					
Upkeep and Repairs					
Depreciation Building					
Machinery					
Tools					
Royalties					
Insurance					
Patent Expiration					
Miscellaneous					
Total					

FIGURE 82

Specific order cost accounting may differ from general accounting in that the books may not contain specific accounts for Indirect Labor, Indirect Materials, Factory Maintenance, Depreciation, and the other manufacturing expenses. However, the standing orders furnish data for such analyses as that presented in Figure 82. Comparisons, both departmental and general, can also be made by months and by years; such analyses are useful for a general view of operations.

Summary.—Accurate unit costs cannot be obtained without a well designed system of cost accounting. The specific order method of accounting for costs is very widely applicable.

Specific order cost accounting depends upon the use of subsidiary ledgers for stores, production orders, and finished goods. These ledgers are controlled by such accounts as Stores, Material in Process, Labor in Process, Manufacturing Expense in Process, and Finished Goods. As material moves from the receiving room into stores, from stores into the factory, from the factory into the finished stock, reports are sent to the cost department which makes the entries on the accounts in the subsidiary ledgers. As labor is expended directly, it is charged by the cost department to the appropriate production orders. Once a month, or as they are finished during the month, production orders are charged with manufacturing expense at predetermined departmental rates.

As indirect manufacturing expenses are incurred, they are charged to the standing orders of the departments concerned, being debited on the general books to Manufacturing Expense. The Manufacturing Expense Account is closed monthly into the departmental expense accounts on the basis of the totals of the departmental standing orders; and the service department costs are then apportioned to the producing departments on bases deemed fair.

Monthly entries are made in the general journal from summaries of Stores Issued and Returned to Stock, of Manufacturing Expense Applied to Production Orders, of Finished Goods, and of Cost of Sales and Sales Returns.

Annually the over- and underapplied manufacturing expenses are closed into cost of sales.

Thus a great part of the work of cost accounting is done by means of the subsidiary ledgers, the reports of specific transactions, and analyses and summaries, but the cost records and the general books agree whenever they have been fully posted at the close of the month.

Cost accounting presents a number of difficult problems of detail of procedure and of theory.

QUESTIONS

1. On page 305 the predetermined distribution rates for manufacturing expenses are computed on three bases: direct labor hours, dollars spent for direct labor, and machine hours. Other bases for these rates are sometimes used, such as value of direct materials used, sum of

the value of labor and direct materials, the number of articles produced, or tonnage of product. Discuss each of these criteria, comparing it with the other bases. Do any of these bases have legitimate uses in peculiar situations?
2. Why is it that the applied manufacturing expense seldom equals in absolute amount the debits to the manufacturing expense account for the same department?
3. Might different bases of applying manufacturing expenses to production orders be used in different departments of the same factory? For example, might a direct-labor-hour rate be used for one department and a machine-hour rate for another department?
4. Why are the rates for applying manufacturing expenses to production orders adopted at the beginning of the month in which they are used, when it would be possible to wait until the end of the month and secure exact rates for that month?
5. Why is it better to take a twelve-month moving average rate for applying manufacturing expense to production orders than the average for the latest month?
6. Explain the function of the standing order in specific cost accounting.
7. Explain the function of the production order in specific cost accounting.
8. Explain the functions of analyses and summaries in specific order cost accounting.
9. What are the differences between the standing orders and the production orders, on one hand, and ordinary accounts in subsidiary ledgers, on the other?
10. Show how you would handle the adjustment of the stores account if the physical inventory showed fewer items on hand than the book inventory called for in one of the stores ledger accounts, and more items on hand in another stores ledger account than the account showed.

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CHAPTER XVIII

MUNICIPAL ACCOUNTS

Peculiarities of Municipal Accounting.—The accounting of states, counties, cities, townships, school districts, and other civil divisions is called municipal accounting. Although double entry may be used in the bookkeeping of these public bodies, it has to be adapted to the peculiar nature of governmental activities. These eccentricities make the books of public officials a confused tangle to one who is used only to ordinary commercial accounting, and they lend interest to the study of the methods involved.

Perhaps the most outstanding characteristic of municipal accounting is the existence of various funds. In this sense a fund is money and other assets which are used or are to be used for a definite purpose or purposes. Public bodies ordinarily have several such funds. There is always the General Fund, which is devoted to meeting the running expenses of the government, including the salaries of officers and clerks, the purchase of supplies, the rental of office space, and the maintenance of the public buildings. Usually there is a Capital Fund which comprises the public works and buildings and the cash and other assets in building and construction funds. Other funds frequently found are:

The Street Fund
The School Fund
The Park Fund
The Library Fund
The Sanitary Fund
The Hospital Fund
The Electric Light and Power Fund
The Special Assessment Fund
The Sinking Fund
The Policemen's and Firemen's Pension Fund

Of course these funds have different names in different commonwealths. Each fund has a complete group of accounts or even a separate set of books. In this chapter the accounts of four of these funds will be considered in enough detail to make clear the peculiar accounting principles.

The second important feature of municipal accounting arises out of the nature of the control of expenditures, the central point in control

being the budget. The first step in budget making is the submission to the budget officer by each department head of an estimate of his department's needs for the ensuing fiscal period and of the probable revenues to be derived from its activities. The budget officer may be the controller or comptroller, the mayor or some other official, or a committee of the legislative body. This official compiles the several departmental estimates into one general budget and usually drafts an ordinance or bill which authorizes proposed expenditures in the form of appropriations and which provides necessary revenue by means of fees and taxes. The budget as proposed is advertised by posting on a bulletin board at the town hall, by publication in newspapers, or by exhibits, such as were used by New York City. After citizens have had opportunity to study it, the legislative body holds hearings, and, after these, the budget ordinance or bill is taken up in the legislative body, often amended, and finally enacted. A form of budget advertisement as devised by one State Board of Accounts is presented in Figure 83. This form is abbreviated from that submitted to the council; the fuller form shows in parallel columns the expenditures of the past year, the budget of the current year, and that of the year to be provided for.

An interesting difference between the business and the municipal budget lies in the initial point of attack. The heart of the business budget is the estimate of unit sales, and on this all the expense budgets and the cash budget are based. The governmental body ordinarily determines first what is to be spent, then estimates the probable income from fees, fines, licenses, sales, and other non-leviable sources, and finally fixes a tax rate calculated to yield a revenue sufficient to make up the total needed. Although, within reason, the legislative body can force the raising of the money, a thing impossible for the business house, of course, the politicians who determine a tax rate should be careful not to overburden the taxpayers. Sometimes the state legislatures impose on the smaller civil divisions limitations of tax rates; and generally taxpayers have the right to appear before the council to express their views on a proposed levy and to "remonstrate" before the courts or the state tax board.

Another important consideration is that the enactment of the budget takes the form of appropriations which often prescribe in detail how the money shall be spent. Sometimes this detail is carried to unfortunate extremes, but its purpose is to insure that the will of the citizens as expressed through their representatives shall be carried out and to prevent officials from using funds for other than their intended purposes. These strictures greatly hamper the exercise of administrative judgment on the part of public officials. Emergencies may be provided for, however, by the creation of a contingent fund which

City Form

NOTICE TO TAXPAYERS OF TAX LEVIES

In the Matter of Determining the Tax Rates for Certain Purposes by ...., Indiana, } Before the Common Council.

Notice is hereby given the taxpayers of ...., ... County, Indiana, that the proper legal officers of said municipality, at their regular meeting place, on the .... day of ...., 193.., will consider the following budget:

Budget Classification for Cities

General Fund

MAYOR'S OFFICE

Personal Service.... ______
Contractual Service. ______
Supplies........... ______
Material.......... ______
Current Charges... ______
Properties......... ______

CITY CONTROLLER'S OFFICE

Personal Service.... ______
Contractual Service. ______
Supplies........... ______
Material.......... ______
Current Charges... ______
Current Obligations. ______
Properties......... ______
Debt Payment..... ______

DEPARTMENT OF LAW

Personal Service.... ______
Contractual Service. ______
Supplies........... ______
Material.......... ______
Current Charges... ______
Properties......... ______

DEPARTMENT OF PUBLIC WORKS

Personal Service.... ______
Contractual Service. ______
Supplies........... ______
Material.......... ______
Current Charges... ______
Properties......... ______

CITY CLERK'S OFFICE

Personal Service... ______
Contractual Service ______
Supplies......... ______
Material.......... ______
Current Charges... ______
Current Obligations ______
Properties......... ______

CITY TREASURER'S OFFICE

Personal Service... ______
Contractual Service ______
Supplies.......... ______
Material.......... ______
Current Charges... ______
Properties......... ______

DEPARTMENT OF PUBLIC SAFETY

Personal Service... ______
Contractual Service ______
Supplies.......... ______
Material.......... ______
Current Charges... ______
Properties......... ______

DEPARTMENT OF PARKS

Personal Service... ______
Contractual Service ______
Supplies.......... ______
Material.......... ______
Current Charges... ______
Current Obligations ______
Properties......... ______
Debt Payment..... ______

CITY JUDGE'S OFFICE

Personal Service... ______
Contractual Service ______
Supplies.......... ______
Material.......... ______
Current Charges... ______
Properties......... ______

COMMON COUNCIL

Personal Service... ______
Contractual Service ______
Supplies.......... ______
Material.......... ______
Current Charges... ______
Properties......... ______

DEPARTMENT OF SANITATION

Personal Service... ______
Contractual Service ______
Supplies.......... ______
Material.......... ______
Current Charges... ______
Current Obligations ______
Properties......... ______
Debt Payment..... ______

DEPARTMENT OF HEALTH AND CHARITIES

Personal Service... ______
Contractual Service ______
Supplies.......... ______
Material.......... ______
Current Charges... ______
Current Obligations ______
Properties......... ______
Debt Payment..... ______

Total General Fund ______

Complete detail of budget estimate may be seen in office of City Clerk or Controller.
(Above form to be repeated for each fund for which a tax is to be levied.)
(If any of above departments are financed by a tax levy same should be set up separately and not carried in general fund.)

Figure 83

ESTIMATE OF FUNDS TO BE RAISED

	Corporation Fund	Fund	Fund	Fund	Fund
1. Total Budget Estimate for incoming year					
2. Deduct Misc. Revenue incoming year (estimated on former year Misc. Rev.)					
3. Subtract line 2 from line 1					
4. Unexpended Appropriations July 31st of present year					
5. All additional appropriations between July 31st and December 31st					
6. Temporary loans to be paid before close of present year					
7. Total (of lines 3, 4, 5 and 6)					
8. Actual Balance July 31st of present year					
9. Tax to be collected present year (December settlement)					
10. Misc. Rev. to be collected present year (⅓ of line 2)					
11. Total (of lines 8, 9 and 10)					
12. Subtract line 11 from line 7					
13. Est. Working Bal. for six months after close of next year (not greater than ½ of line 3)					
14. Amt. to be raised by tax levy (add lines 12 and 13)					

Proposed Levies

Net Taxable Property ______
Number of Taxable Polls ______

Name of Fund	Levy on Polls	Levy on Property	Amount to Be Raised
Total			

Taxpayers appearing shall have the right to be heard thereon. After the levies have been determined, ten or more taxpayers feeling themselves aggrieved by such levies, may appeal to the State Board of Tax Commissioners for further and final action thereon, by filing a petition therefor with the County Auditor not later than the fourth Monday of September, and the State Board will fix a date of hearing in this county.

Dated....................193..

....
....

Figure 83 *(continued)*

is at the disposal of the governor, the mayor, the superintendent, or some other official who may have to face crises or meet urgent needs that have not been foreseen. The responsibility for seeing that no funds are misused and that no authorized expenditure exceeds the appropriation generally falls on an officer whose title is Auditor or Comptroller.

General Fund Accounts

Usual Name of Account	Debits to Account	Credits to Account
1. Current Cash	All receipts of cash by General Fund	All disbursements of cash by General Fund
3. Current Taxes Receivable[a] (Tax Roll) (Tax Ledger Control)	Taxes levied on taxpayers Refunds of excessive tax collections approved	Taxes paid by taxpayers Uncollected taxes removed to Delinquent Taxes Taxes canceled or remitted
5. Delinquent Taxes[a]	Amount of delinquent taxes transferred from Current Taxes Receivable Penalties for delinquency	Delinquent taxes and penalties collected
7. Due from Other Funds (Transfers to Other Funds)	Amounts transferred to other funds	Amounts returned from other funds
9. Estimated Revenues[b],[a]	Budget estimate of receipts from revenues other than taxes	Closed into Current Surplus
11. Sinking Fund Contributions Required	Amount budgeted to be received from sinking fund to be applied on debt reduction	Cash received from Sinking Fund
2. Current Appropriations[b],[a]	Amount of current claims audited Closed into Current Surplus	Appropriations as made by ordinance
4. Current Claims Audited (Audited Vouchers Payable) (Invoices Payable)	Warrants drawn	Claims audited and approved
6. Current Warrants Payable	Warrants paid	Warrants drawn
8. Current Loans (Anticipation Warrants) (Temporary Loans)	Loans approved for payment	Loans made in anticipation of taxes
10. Due to Other Funds (Transfers from Other Funds)	Amounts approved for return to other funds	Amounts transferred from other funds
12. Current Revenues[b],[a]	Closed into Current Surplus	All revenue receipts
14. Current Surplus	Expenditures attributable to prior years Amount closed from Estimated Revenues Closed by budget entry at beginning of period	Amount closed from Current Revenues Amount closed from Current Appropriations Closed by budget entry at beginning of period

[a] Controlling Accounts.
[b] Closed into Current Surplus.

Figure 84

The third salient difference of municipal from commercial accounting is the general absence of profit and loss. There are, of course, receipts and expenditures, but a governmental body seldom has loss and gain to record. However, there are income and expense accounts whenever there are publicly owned utilities, such as water, electricity, or gas. Moreover, there are no ordinary capital accounts, the difference between the assets and the liabilities being recorded in accounts called Surplus. There is usually a surplus account for each of the funds.

Because of these peculiarities the names of the accounts of public bodies sound strange to persons familiar only with commercial work, but there is nothing about municipal bookkeeping that cannot be learned by one who is acquainted with double entry. The differences of terminology in the various commonwealths tend to further confusion, but there is so strong a family resemblance that one familiar with the books of one city can readily adapt himself to those of another. Several states have boards of accounts which have done much to improve and to standardize the financial records of public officials. The balance of this chapter will be devoted to a description of the accounting of several typical funds.

The General Fund.—The Corporate or General Fund will be treated first because it is universal. Figure 84 tabulates some accounts normally found in this fund. Although this schedule does not include all the transactions possible, it does provide a guide to the use of the accounts. How these accounts normally function will appear from a few typical entries.

The starting point in General Fund accounting is the budget. It may be assumed that there is an estimated Current Surplus of $10,000.00 at the end of the period preceding the beginning of the budget year, that the budget calls for expenditures of $670,000.00, of which $600,000.00 is to come from taxes, $50,000.00 from estimated revenues, $10,000.00 from the Sinking Fund, and $10,000.00 from the balance of cash anticipated at the close of the current year. The budget is placed on the books as the opening entry of the new period, as follows:

Current Taxes Receivable	$600,000.00	
Sinking Fund Contributions Required	10,000.00	
Estimated Revenues	50,000.00	
Current Surplus	10,000.00	
Current Appropriations		$670,000.00
To set up on the books the budget for the fiscal year 19— as adopted by the Common Council ———.		

It should be noted that the account Current Taxes Receivable is really a controlling account, agreeing with the ledger in which are posted the amounts owed by each taxpayer. The sheets for this ledger are usually specially printed, one line being devoted to each taxpayer or to each parcel of real estate taxed. The ledger provides columns for the number of the tax bill, which is the number of the taxpayer's account, for the taxpayer's name, for the location of real estate owned, for the value of the real estate, for the value of the personal property, for the amount of special assessments, for the amount of the poll tax, for the amount of taxes due at each installment, for the total taxes due, and for the dates and amounts of payments. If a deficiency is expected at the end of the period preceding the budget year there can be no debit to Current Surplus; there will, instead, be a credit to this account, as taxes will have to provide enough to meet the deficit. The detail of Current Appropriations, which may involve hundreds of accounts in the subsidiary ledger, is recorded either in the explanation of the journal entry or in a special column; and it is therefore better to have a special column for Current Appropriations in all journals which may record entries affecting appropriations.

If special assessments are to be collected with taxes, as is often the case, the control account is adjusted by the entry:

Current Taxes Receivable	$ 50,000.00	
Due to Assessment Fund		$ 50,000.00
To record special assessment for the year 19— to be collected with taxes.		

Cash receipts are shown by such entries as the following:

Current Cash	$640,000.00	
Current Taxes Receivable		$640,000.00
Current Cash	61,000.00	
Current Revenues		61,000.00
Current Cash	50,000.00	
Current Loans		50,000.00

Since the taxes are collected in many comparatively small items, the treasurer usually records each day's receipts on a blotter or other memorandum, the totals only being entered in the general books. Similarly, the entries to Current Revenues are made from daily summaries of memoranda which classify all receipts according to the type of revenue. The cash receipts journal may have a column for each type of revenue and for taxes. Sometimes there are two accounts in which revenues are tabulated, Current Revenues—Estimated, in which are entered all the revenues expected when the budget was adopted, and Current Revenues—Unestimated, which covers those from sources not counted upon at that time. The basis of this separation is the type of revenue rather than the amount expected or received. When tax receipts fall below expectation, or when cash has been exhausted before the date for tax collections, a government unit will often borrow on short-time notes in order to meet salary and other pressing obligations. These current loans are regularly used by some cities on the theory that it is better to leave money in the taxpayers' hands than to finish the year with a surplus.

If some taxes are not paid when due, an entry will be necessary to transfer them from the Current Taxes Receivable to the delinquent taxes ledger, such as:

Delinquent Taxes	$8,000.00	
Current Taxes Receivable		$8,000.00

These delinquent taxpayers must be charged with the penalties and interest by some such entry as follows:

Delinquent Taxes	$ 800.00	
Current Revenues		$ 800.00

When some delinquents make their payments the entry will be:

Current Cash	$4,400.00	
Delinquent Taxes		$4,400.00

When a contract is made which involves the payment of funds from any appropriation, a notation must be made on the account of that particular appropriation to show the "encumbrance," in order to preclude the possibility of such payments exceeding the amount available. A form for the appropriations ledger might resemble Figure 85; and it will be noticed that in this ledger sheet the credit has been placed on the left as a matter of convenience.

When bills are presented to the city they must be audited. After their approval they may be vouchered; but whether or not a formal voucher is made, the entry will be of this form:

Current Appropriations	$662,000.00	
Current Claims Audited		$662,000.00
Current Loans	50,000.00	
Current Claims Audited		50,000.00
Due to Assessment Fund	48,000 00	
Current Claims Audited		48,000.00
Due from Pension Fund	10,000.00	
Current Claims Audited		10,000.00

These entries probably need no comment beyond the fact that the last one is intended to record the authorization of an advance of $10,000.00 from the General Fund to the Pension Fund.

The vouchering of a claim does not include an order on the treasurer to make payment; it merely recognizes officially the existence of the liability.

Appropriation for ______________ Department No. _____
Detail ______________________________
____

Date	Reference	Current Appropriations Cr.	Amount of Current Claims Audited Dr.	Available Balance	Encumbrances	
					Amount	Nature

FIGURE 85
FORM FOR APPROPRIATIONS LEDGER

If the money is available when payment is due, the auditor or comptroller draws a warrant on the treasurer, ordering him to make the payment, and the following entry is made:

Current Claims Audited	$708,000.00	
Current Warrants Payable		$708,000.00

When the treasurer honors the warrant by paying it, the entry is:

Current Warrants Payable	$703,000.00	
Current Cash		$703,000.00

The treasurer probably pays these warrants by drawing checks on depository banks.

In making these typical illustrative entries, amounts have been used in order that the process of closing the fund accounts might be illustrated. On the assumption that the fiscal year began with a debit balance of $10,000.00 in Current Cash and an equal credit balance in Current Surplus, the trial balance after posting the general entries would be as in Figure 86.

The asset and liability accounts must carry over into the new fiscal period, but the revenue accounts are closed into Current Surplus by

BLANK CITY
GENERAL FUND
TRIAL BALANCE
Date

Current Cash	$ 62,400.00	
Current Taxes Receivable	2,000.00	
Delinquent Taxes	4,400.00	
Due from Pension Fund	10,000.00	
Estimated Revenues	50,000.00	
Current Appropriations		$ 8,000.00
Current Claims Audited		62,000.00
Current Warrants Payable		5,000.00
Due to Assessment Fund		2,000.00
Current Revenues		61,800.00
Sinking Fund Contributions Required	10,000.00	
	$138,800.00	$138,800.00

FIGURE 86

simple entries, which, based on the Trial Balance in Figure 86, would be:

Current Revenues	$61,800.00	
Estimated Revenues		$50,000.00
Current Surplus		11,800.00
To close excess of current revenues over estimate into Current Surplus.		

In many governing units any unexpended balances of appropriations at the end of a year become ineffective or "revert to the General Fund." Under these circumstances, another closing entry is required:

Current Appropriations	$ 8,000.00	
Current Surplus		$ 8,000.00
To record reversion of the unexpended balances to the general use.		

When these closing entries have been made, the balance sheet of the General Fund may be presented as in Figure 87, all assets and liabilities in the Fund ordinarily being current.

Of course there may be many accounts in the General Fund in addition to those mentioned in this chapter. For example, a city sometimes engages in such transactions that it has to open an ordinary accounts receivable ledger, and in such a case a Reserve for Bad Debts is often found necessary. Interest on outstanding bonds is generally a charge against the General Fund and therefore necessitates a specific appropriation each year. Thus it is seen that these interest payments fit into the scheme of accounts already outlined. Similarly, bond principal payments are handled through the General Fund by appropriation, even if the money for their redemption comes from the Sinking Fund. Installments on the Sinking Fund are budgeted and appropriated at the beginning of the year, and thus they also pass through the General Fund. The plan of the General Fund accounts, as presented in Figure 84, is thus elastic enough to accommodate a wide range of entries.

In any discussion of General Fund accounts, the number of control accounts in the general ledger should be taken into consideration, for each of these controls must be kept in agreement with its subsidiary ledger. This is often achieved by posting direct to the subsidiary ledger accounts from debit and credit memoranda and by summarizing such memoranda on blotters, their totals being entered in the journals. Columnar journals are much used perforce, and among them are the Cash Receipts Record, the Cash Disbursements Record, the Warrant Register, the Voucher Register, the Invoice Register, and the Purchase Order Register. The forms for the original records of such transactions must be designed to indicate absolute responsibility for all receipts and to prevent unauthorized expenditures—in other words, there should be a complete system of internal check.

BLANK CITY
GENERAL FUND
BALANCE SHEET
Date

ASSETS		LIABILITIES	
Cash	$62,400.00	Current Claims Audited	$62,000.00
Taxes Receivable	2,000.00	Current Warrants Payable	5,000.00
Delinquent Taxes	4,400.00	Due to Assessment Fund	2,000.00
Due from Pension Fund	10,000.00		$69,000.00
Sinking Fund Contributions Required	10,000.00	NET WORTH	
		Current Surplus	19,800.00
	$88,800.00		$88,800.00

FIGURE 87

The Capital Fund.—The accounts of the Capital Fund have to do with the permanent properties of the governmental unit and with the debts contracted to finânce their acquisition. Among these properties may be classed town halls, police stations, fire houses, parks, sewage disposal plants, schools, libraries, trucks, road-building machinery, bridges, and many others. While it is common to account in this fund for only those assets requiring considerable expenditures, there is no reason for omitting any fixed assets. Moreover, there should be a complete inventory of all permanent property and a definite record of those responsible for each item. A set of typical accounts for the Capital Fund is presented in Figure 88.

The use of the capital group of accounts will be illustrated by the supposition that a sewer is to be constructed at an estimated cost of $200,000.00. Having complied with all the legal formalities, the city issues bonds having a par value of $200,000.00 at a premium of $6,000.00. The entry on the books of the Capital Fund would be:

CAPITAL FUND ACCOUNTS

Name of Account	Debits to Account	Credits to Account
21. Capital Cash	All cash received in Capital Fund	All cash paid from Capital Fund
23. City Properties[a]	Cost of properties completed or purchased	Cost of properties sold or abandoned
20. Capital Loans[a] (Funded Debt) (Bonds Payable)	Par value of bonds paid	Par value of bonds issued
22. Capital Surplus (Surplus in Fixed Assets)	Cost of properties abandoned Loss on properties sold Discount on bonds issued	Par value of bonds paid Gain on properties sold Premium on bonds issued
24. Capital Claims Audited (Capital Vouchers Payable)	Amount of warrants drawn on claims	Amount of claims approved
26. Capital Warrants Payable	Amount of warrants paid	Amount of warrants drawn

[a] Controlling account.

FIGURE 88

Capital Cash	$206,000.00	
Capital Loans		$200,000.00
Capital Surplus		6,000.00
To record sale to the ———— State Bank of 200 bonds each of $1,000.00 par value at 103.		

Actually Capital Cash might be a control account, the receipts from each issue of bonds being kept separate. In practice also there would be a separate account for each bond issue. The laws of many states prescribe a maximum rate of interest on public borrowings and provide that securities may not be sold by any governmental unit at less than par. Thus the interest rate on public bonds is often set high enough to command some premium. If the bonds are issued at a premium to finance some municipally owned utility, a premium account should be opened and amortized during the life of the loan; in other cases the premium is credited direct to Surplus. Discounts are similarly handled—those on bonds issued to finance income-producing properties should be amortized during the life of the bonds, but those on ordinary government loans should be charged immediately to Surplus.

As invoices are submitted covering the claims of the contractors building the sewer, they are audited and, if correct, approved. For the claims approved the entry will be in the form:

City Properties	$195,000.00	
Capital Claims Audited		$195,000.00
To record claims approved as submitted by contractors for the ——— sewer construction project.		

When warrants on the treasurer are drawn, the entry is of this form:

Capital Claims Audited	$190,000.00	
Capital Warrants Payable		$190,000.00
To record the issuing of warrants in settlement of capital claims.		

As these warrants are presented and paid by the treasurer, the entries will be:

Capital Warrants Payable	$189,000.00	
Capital Cash		$189,000.00

Eventually, of course, all the claims audited and found valid will have to be paid.

In order to illustrate further the working of the capital group of accounts, let it be assumed that during the period $10,000.00 of the bonds have been paid. Payments on the public debt are budgeted and appropriated just as are any other municipal expenditures. Therefore there would have been included in the General Fund entries the following:

Current Appropriations	$10,000.00	
Current Claims Audited		$10,000.00
Current Claims Audited	10,000.00	
Current Warrants Payable		10,000.00
Current Warrants Payable	10,000.00	
Current Cash		10,000.00

These entries show the expenditure of cash to redeem the bonds. A parallel entry would be made on the records of the Capital Fund to show the reduction of the funded debt and the increased equity of the city in the property, thus:

Capital Loans	$10,000.00	
Capital Surplus		$10,000.00
To record cancellation of bonds paid from General Fund.		

When these entries have been made, the balance sheet of the Capital Fund will appear as in Figure 89.

The wisdom of financing the purchase of fixed assets by a bond issue is frequently questionable. However, the policy is generally advocated

on the ground that public improvements will benefit subsequent generations. If bonds are issued with twenty or thirty years to run, those who were children at the time of the issue will have to pay the taxes for the ultimate retirement of the debt. This argument embraces a tremendous fallacy, for if the bonds call for five-per-cent interest and run for twenty years, the taxes will, in the end, amount to twice the issue. If a city is constantly financing the purchase and construction of fixed assets with bonds, the tax rate in time becomes far higher than it would have been under a "pay as you go" policy. Thus financing municipal improvements with bonds takes from the taxpayers as a whole far more than would a policy of paying for all capital assets as they are acquired. The argument is sometimes advanced, that it is better to leave the money in the hands of the taxpayers because they can invest at higher returns than the rate of interest the government has to pay on the bonds. This argument is of doubtful force because the bonds of any city financially sound always have a ready sale—investors are eager for them. The positive disadvantages of financing capital outlays with bonds are:

BLANK CITY
CAPITAL FUND
BALANCE SHEET
Date

Assets		Liabilities	
Cash	$ 17,000.00	Claims Audited	$ 5,000.00
City Properties	195,000.00	Warrants Payable	1,000.00
		Bonds Payable	190,000.00
		Surplus	16,000.00
	$212,000.00		$212,000.00

FIGURE 89

1. It tends to encourage extravagant building beyond the city's ability to pay
2. It encourages cities to go into debt up to the constitutional limit, thereby possibly injuring their credit seriously and making much-needed construction impossible.
3. It makes the taxes in the long run actually higher than under the outright payment system.

By planning capital outlays for ten or fifteen years ahead, by paying for small property acquisitions from current taxes, by distributing construction to equalize outlays from year to year, and by using serial three-to-five-year notes to finance a few relatively big projects, municipalities could in the long run effect great savings; but the American public is accustomed to bond issues, and therefore the accountant must be able to handle them on the books.

Sometimes no Capital Fund accounts are set aside in a special group. The City Properties and Bonds Payable accounts must then be included among the accounts of the General Fund. In such a case it is well also to have a special account for "Surplus Invested in City Properties" and to open temporarily a separate cash account for the receipts from each bond issue.

It is not customary to set up reserves for the depreciation of city properties other than income-producing utilities. But whenever the municipality enters business and employs fixed assets, these valuation accounts should be set up, in order that the expenses of operation may be computed properly and the true value of the plant may appear in statements.

Sinking Fund Accounts

Usual Name of Account	Debits to Account	Credits to Account
41. Sinking Fund Cash	Cash received in fund	Cash paid out from fund
43. Sinking Fund Investments[a]	Investments at cost	Investments disposed of
40. Due to Other Funds	Advances from other funds returned	Advances received from other funds
42. Sinking Fund Warrants Payable	Sinking Fund warrants paid	Sinking Fund warrants drawn
44. Sinking Funds[a] (Sinking Fund Reserves)	Sinking Fund warrants drawn Losses on sales of investments Amortization of premiums on investments Sinking Fund expenses if borne by fund	Contributions received in Sinking Fund Gains on sales of investments Amortization of discounts on investments Interest on investments

[a] Controlling Account.

Figure 90

Other Funds.—In most municipalities there are apt to be at least two other funds of considerable importance, the Sinking Fund and the Special Assessment Fund. The accounts in the Sinking Fund group are presented in Figure 90. If there are several bond issues, each with its own sinking fund, a special group of accounts will be needed for each fund. The items of these accounts, however, can be combined into one Sinking Funds Balance Sheet in the city's financial report. It is much wiser for governmental bodies to issue serial bonds, which require no sinking funds because their maturities are distributed equally over their term of existence, than to secure money by the sale of obligations with fixed, lump-sum, distant maturities. While it is true that the taxes for the payment of the principal of an issue of sinking fund bonds should be less than the face of the obligations because of the accumulation of interest on the fund; yet more money has to be raised by taxes for interest payments on the sinking fund issue, because the interest on a considerable portion of the serial bonds ceases each year as a class is redeemed. Moreover, safe sinking fund investments can seldom be found which will yield interest at as good a rate as the bonds being sunk. Finally, there is always the danger of losing the principal of a sinking fund, either through poor investments or by dissipation. For example, one county issued bonds to finance a new courthouse. A sinking fund was started, but before the bonds fell due this fund had been spent for other public purposes and the obligations had to be refunded. A second fund was later dissipated in the same way, and, at the maturity of the second issue of bonds, they too had to be refunded. The taxpayers have been paying interest for about fifty years on the cost of the courthouse, in addition to paying the principal twice over, but the building is still as heavily bonded as at its dedication. Of course sinking funds are usually not lost in this way; but there is always the danger of shrinkage, a danger which is obviated by serial payments.

When improvements are made which measurably benefit certain properties, it is customary to assess all the cost or a very large part thereof on the owners of the land affected. Such levies are called Special Assessments, and are most common in connection with paving streets and alleys, laying sidewalks, and constructing sewers, drainage ditches, and irrigation systems. In growing cities and in arid or swampy country districts special assessments are of great importance. Such improvements are usually financed by means of bond issues. These are obligations, not of the governmental body, but of the owners of the property benefited, and they constitute a lien on it. Therefore the law usually requires that no improvement shall be undertaken until a considerable majority of the owners of the land affected, a majority by number or interest or both, shall have petitioned for it, and until those opposed have been given an opportunity to remonstrate.

Figure 91 summarizes the accounts that are necessary in handling the bookkeeping for special assessments. It should be noted that part of the benefit of any given improvement may be assessed against the city and the remainder against the private individuals holding the real estate. The city's share is usually proportioned to the publicly owned land affected, as in the case of paving a street which runs in front of the city hall.

Although this chapter has developed the fund accounts in such a way that each group permits complete double entry, the modern tendency is to put in the same general ledger all the accounts of all funds that are under one legal control, opening as many subsidiary ledgers as may be necessary. If this is done, there will be only one account for Claims Audited, and one for Warrants Payable. It is well, however, to maintain a cash account for each fund, even though there is only one bank deposit. Funds under separate control, such as the school fund, should be accounted for in a separate set of books. Ordinarily accounts for trust funds can be kept in the general ledger of the corporation, thereby saving much duplication of effort without sacrificing the obligation to keep the money available only for the specific purposes for which it was collected.

ASSESSMENT FUND ACCOUNTS

Usual Name of Account	Debits to Account	Credits to Account
51. Assessment Cash	Cash received into fund	Cash paid out from fund
53. Local Improvements[a] (Reimbursable Expenditures)	Cost of improvements when claims allowed	Cost of improvements assessed against taxpayers and city
55. Assessments Receivable[a]	Cost of improvements assessed against taxpayers Interest charged taxpayers	Assessments collected Assessments turned over to General Fund for collection
57. Assessments against the City (Public Benefit)	Cost of improvements assessed against the city Interest charged city	Charges paid by city
59. Due from General Fund	Assessments turned over to General Fund for collection Advances to General Fund	Cash received from General Fund
50. Assessment Loans[a]	Loans paid	Loans made to finance improvements made from this fund
52. Assessment Claims Audited (Assessment Vouchers Payable)	Amount of warrants drawn	Cost of improvements when claims are allowed Other claims allowed (as refunds on assessments, etc.)
54. Assessment Warrants Payable	Amount of warrants paid	Amount of warrants drawn
56. Due to General Fund	Claims allowed to repay General Fund	Amounts advanced by General Fund
58. Interest[b]	Claims allowed to pay interest on loans	Interest charged against taxpayers and city
60. Assessment Surplus	Refunds allowed on excess assessments Discount on assessment loans Excesses of interest paid over interest assessed	Excess of assessments over cost of improvements Premium on assessment loans Excess of interest assessed over interest paid

[a] Controlling Account. [b] Closed into Surplus.

FIGURE 91

Financial Statements of Municipalities.—There is a good deal of permissible variety in municipal financial statements. Statements of re-

STATEMENT OF RECEIPTS AND DISBURSEMENTS

ALL CITIES OF INDIANA, FOR CALENDAR YEAR 1929

Balance January 1, 1929			$12,778,288.02
Revenue Receipts			
Taxes	$26,028,194.63		
Licenses, Permits, and Fees	683,227.18		
Fines	132,008.53		
Depository Interest	241,504.34		
		$27,084,934.68	
Earnings of City Institutions			
Water Works Plants	$ 4,246,899.47		
Electric Light Plants	5,770,474.77		
Other Earnings	835,077.89		
		10,852,452.13	
Sale of Property		267,634.97	
Assessments for Construction		251,111.22	
Received from Other Government Units			
State Gasoline Tax	$ 782,043.30		
Counties	234,960.18		
Township Library Tax	43,137.58		
		1,060,141.06	
Borrowings			
Bonds	$ 5,303,302.84		
Temporary Loans	2,969,630.23		
		8,272,933.07	
Miscellaneous Receipts		789,128.09	
Total Receipts excluding Transfers			48,578,335.22
Total Available for all Purposes			$61,356,623.24
Disbursements			
General Administration		$ 1,334,657.88	
Construction of Buildings		7,328,455.62	
Care, Repair, and Rental of Buildings		584,129.25	
Police Protection		4,198,654.24	
Fire Protection		4,918,832.26	
Inspection and Examination		213,648.98	
Conservation of Health		1,250,618.51	
Parks and Recreation		1,885,765.21	
Cemeteries		126,118.60	
Sewers and Garbage Disposal		1,448,476.84	
Street Repairs and Construction		5,041,112.13	
Water Supply		3,605,046.66	
Public Lighting		5,143,278.72	
Administration of Justice		102,703.70	
Libraries		696,716.00	
Elections		279,483.57	
Pensions		299,884.10	
Bonds		1,730,036.92	
Temporary Loans		3,469,548.95	
Interest		1,853,746.83	
Insurance		71,543.33	
Examination of Records		16,936.90	
School Aid		39,844.86	
Miscellaneous		1,079,631.25	
Total Disbursements excluding Transfers			$46,718,871.31
Balance, December 31, 1929			14,637,751.93
Total			$61,356,623.24

FIGURE 92

ceipts and disbursements are usually furnished for each of the funds, showing the sources of the money collected and the purposes of the payments; these are generally on a "cash in and cash out" basis, no attention being paid to deferments and accruals. Whenever two or more funds are under the control of one public corporation, the receipt and disbursement statements of the several funds should be shown separately and also combined into one consolidated statement. Figure 92, a composite summary of the receipts and payments of all the cities of Indiana for one year, illustrates the possibilities of such a statement.

Figures 87 and 89 illustrated the balance sheets of different funds. The several fund balance sheets should be combined into a consolidated balance sheet for the city as a whole by adding similar items and by eliminating inter-fund relationships, in much the same way as the accounts of branches and home offices are combined. Since the consolidation of statements is treated in Chapters XXIV and XXV, the detailed process is not described at this point.

The Isolation of Funding Accounts.—In order to be able to follow closely the administration of the budget and to keep an accurate record of resources available for each item budgeted, there has been devised a system of municipal record keeping which separates the real and nominal accounts from the "funding accounts." The funding accounts are those having to do with appropriations, encumbrances, contracts executed, orders placed, and the resources available to satisfy liabilities. The real and nominal accounts, on the other hand, deal with actual assets, liabilities, revenues, and expenditures. The separation of these two groups of accounts involves parallel entries in the two circles of accounts for most of the transactions, although a few transactions are recorded in only one set of accounts. This separation of municipal accounts will be illustrated by a problem which was given in a Wisconsin examination and by its solution in harmony with the answer furnished by the Wisconsin State Board of Accountancy.

Attention is first called to the following grouping of the accounts of the City of Blank:

Real and Nominal Accounts

1. Sundry Asset Accounts
2. Cash
3. Delinquent Taxes Receivable
4. Sundry Expense Accounts
5. Revenue from Taxes
6. Sundry Revenue
7. Taxes Receivable
8. Warrants Payable

Funding Accounts

9. Appropriations
10. Delinquent Taxes Receivable
11. Estimated Tax Revenue
12. Estimated Sundry Revenue
13. Estimated Appropriation Underrun
14. Free Cash
15. Cash Reserve for Open Market Orders
16. Reserve for Contracts
17. Reserve for Open Market Orders
18. Tax Revenue Receivable
19. Unappropriated Revenue

The transactions to be recorded are of types to illustrate the use of the two divisions of the accounts; the letters *RN* will denote entries in the real and nominal group, while *F* will designate entries in the funding group.

1. Appropriations for the year were $1,000,000.00, of which $800,000.00 was expected to come from taxes and $150,000.00 from sundry revenues. The budget is set up in the funding group, thus:

F	Estimated Appropriation Underrun (13)	$ 50,000.00	
	Estimated Tax Revenue (11)	800,000.00	
	Estimated Sundry Revenue (12)	150,000.00	
	Appropriations (9)		$1,000,000.00

2. When the tax duplicate was completed it was found that the taxes levied amounted to $820,000.00. This is entered in each group, first to set up the actual asset, and second to reveal the effect on funds available to meet appropriations.

RN	Taxes Receivable (7)	$820,000.00	
	Revenue from Taxes (5)		$820,000.00
F	Tax Revenue Receivable (18)	820,000.00	
	Estimated Tax Revenue (11)		800,000.00
	Unappropriated Revenue (19)		20,000.00

3. During the first six months taxes were collected to the amount of $810,000.00. The taxes not collected were declared delinquent. The summary entries for these transactions are placed in each group of accounts—in the real and nominal circle in order to show the actual change in form of the assets, and in the funding circle to show the amount of free cash from which bills may be paid. This Free Cash account is not a Cash account, but a record to show how much of the cash is available for use.

RN	Cash (2)	$810,000.00	
	Taxes Receivable (7)		$810,000.00
RN	Delinquent Taxes Receivable (3)	10,000.00	
	Taxes Receivable (7)		10,000.00
F	Free Cash (14)	810,000.00	
	Delinquent Taxes Receivable (10)	10,000.00	
	Tax Revenues Receivable (18)		820,000.00

4. During the first six months $50,000.00 of sundry revenues were collected. This type of transaction is recorded in each cycle of accounts just as was the collection of taxes, thus:

RN	Cash (2)	$ 50,000.00	
	Sundry Revenue (6)		$ 50,000.00
F	Free Cash (14)	50,000.00	
	Estimated Sundry Revenue (12)		50,000.00

5. During this period contracts were executed to aggregate amounts of $250,000.00, and orders totaling $400,000.00 were placed in open market. Since the mere placing of orders does not immediately affect assets, liabilities, or expenses, such transactions are not entered in the real and nominal circle. On the other hand, the placing of contracts or orders does encumber the appropriations. These encumbrances are shown by entries in the funding circle.

F	Appropriations (9)	$250,000.00	
	Reserve for Contracts (16)		$250,000.00
F	Appropriations (9)	400,000.00	
	Reserve for Open Market Orders (17)		400,000.00
F	Cash Reserve for Open Market Orders (15)	400,000.00	
	Free Cash (14)		400,000.00

6. During this six months claims amounting to $480,000.00 were audited and the warrants drawn for payment. These claims were classifiable as $370,000.00 for sundry expenses and $110,000.00 for the acquisition of sundry assets; $380,000.00 arose from open market orders and $100,000.00 from contracts. Since warrants are drawn, or vouchers made, the actual liabilities are recognized, and the transactions are set up on the real and nominal circle of accounts. At the same time the effect on the funding group of accounts should be recorded.

RN	Sundry Expense Accounts (4)	$370,000.00	
	Sundry Asset Accounts (1)	110,000.00	
	Warrants Payable (8)		$480,000.00
F	Reserve for Open Market Orders (17)	380,000.00	
	Cash Reserve for Open Market Orders (15)		380,000.00
F	Reserve for Contracts (16)	100,000.00	
	Free Cash (14)		100,000.00

7. Warrants totaling $350,000.00 have been paid by the treasurer. This affects the real and nominal accounts only, since the funding accounts show what cash is available regardless of the actual amount in the treasury.

RN	Warrants Payable (8)	$350,000.00	
	Cash (2)		$350,000.00

At this point, the middle of the hypothetical year, the statements of the municipality would appear as in Figure 93. The advantage of using the funding accounts and of preparing the funding balance sheet is the clear picture given of the legal status, the available balances in appropriations, the proportions of the cash that are free or encumbered, and the status of the revenues planned in the budget as shown by the accounts Delinquent Taxes Receivable, Estimated Appropriation Underrun, and Unappropriated Revenue. On the other hand, the actual situation as developed by the levy of taxes, collections of taxes and other revenues, and actual expenditures, is also shown clearly in the Revenue and Expense Statement and in the Assets and Liability Balance Sheet. Many accountants believe that thus clarifying the situation is well worth the added complication in the accounts. But others hold that municipal accounting should be made as simple as is compatible with establishing responsibility and enforcing the action of the budget-making body. Such accountability is obtained by the less complicated method of fund accounting described in the first sections of this chapter. Indeed, some of the prescribed methods of public accounting laid down by state boards of accounts which have to deal with ignorant

FINANCIAL STATEMENTS OF BLANK CITY

A. Revenue and Expense Statement

January 1 to June 30, 19—

Revenue from Taxes	$820,000.00
Sundry Revenues	50,000.00
Total Revenues	$870,000.00
Sundry Expense Accounts	370,000.00
Excess Revenues	$500,000.00

B. Assets and Liability Balance Sheet

June 30, 19—

Assets		Liabilities	
Cash	$510,000.00	Warrants Payable	$130,000.00
Delinquent Taxes Receivable	10,000.00	Excess Revenue	500,000.00
Sundry Asset Accounts	110,000.00	Surplus	———
	$630,000.00		$630,000.00

C. Funding Balance Sheet

June 30, 19—

Debits		Credits	
Cash Reserve for Open Market Orders	$ 20,000.00	Reserve for Open Market Orders	$ 20,000.00
Free Cash	360,000.00	Reserve for Contracts	150,000.00
Estimated Sundry Revenue	100,000.00	Appropriations	350,000.00
Delinquent Taxes Receivable	10,000.00	Unappropriated Revenue	20,000.00
Estimated Appropriation Underrun	50,000.00		
	$540,000.00		$540,000.00

Figure 93

local officials are not even on a completely double entry basis. The forms used in such systems, however, are designed to hold these officials to the expenditures legally authorized, and to make them accountable for all funds received.

Summary.—Municipal accounting is different from ordinary commercial accounting because it originated largely through the need of spending money according to the will of a legislative body. The result is that various funds have to be maintained, and a budget set up.

The attempt to develop a means of showing the exact status of the budget appropriations has led to the use of funding accounts and to the preparation of a funding balance sheet. This involves what is virtually a system of parallel double entries in two circles of accounts, the funding and the real and nominal accounts.

Because of the vast amount of detail in municipal accounting, many subsidiary ledgers and controlling accounts are used, and the entries in the general ledger are made for the most part from summaries of transactions.

Many states have established a centralized control of public accounting in order to prevent the loss of public funds and to enforce budgets.

QUESTIONS

1. What is the theory of "checks and balances" in the federal government, and how does it affect municipal accounting?
2. Describe a fund as the term is used in municipal accounting.
3. Is it true that a municipality determines what it wishes to spend, and then raises the money? or is there a limit on what the city may spend? Find out what the limitations are for the cities in your state on raising and spending money.
4. Find out, if possible, how many different bodies have power to tax property in the city or township where you live.
5. Discuss the use of the account Reserve for Encumbrances as a substitute for noting encumbrances on the appropriation accounts.
6. Discuss the use of the account Current Appropriations.
7. Why are Delinquent Taxes placed in an asset account rather than in an expense account?
8. Discuss the nature of the account Current Surplus. Is it a surplus in the usual accounting sense? Is Capital Surplus in municipal accounting similar to the account of the same name in private corporation accounting?
9. Why would you expect the detail of municipal accounting to vary considerably from state to state?
10. Look up and report upon your state law on municipal budgets.
11. How would you close the books of the Blank City whose mid-period statements are given as Figure 93?

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CHAPTER XIX

PARTNERSHIP VICISSITUDES

Partnership Problems.—The methods of opening and closing the books of partnerships, the ways of computing average capital, and the possible variations of the agreements for distributing profits and losses are familiar to every student who has completed a first-year course in accounting. Since there is no necessity for covering the familiar ground, attention will be turned in this chapter to the more unusual situations, such as the retirement of partners, the admission of new members to the firm, and the liquidation of partnerships. All of the difficulties connected with accounting for such events center about problems of valuation and of the distribution of profits and losses in liquidation. Although the underlying principles are quite simple, the ramifications of their application are well-nigh endless. Before considering the changes in the personnel and in the very existence of partnerships, however, it is worth while to take up one rather perplexing feature that sometimes enters into the distribution of ordinary operating profits.

Bonuses to Managing Partners.—A partnership agreement may provide that a certain per cent of the net profits from operation shall be credited to one of the firm, usually the one principally responsible for the management, before the residual profits are distributed. Such a clause is ambiguous unless it makes clear whether the percentage of the bonus is to be applied to the net profits before the deduction of the bonus or to the profits remaining after the bonus has been taken out. For example, if the profits are $10,000.00 and the bonus is to be 25 per cent, then the bonus will be $2,500.00 or $2,000.00, depending on whether the base figure is the profit before the deduction of the bonus or the remainder after its subtraction.

1. If the bonus is 25 per cent of the entire net profit, then one should take 25 per cent of $10,000.00, or $2,500.00, for the bonus.
2. If the bonus is 25 per cent of the net profit remaining after its deduction, then $10,000.00 is 125 per cent of the net profit after the subtraction of the bonus. The net remaining profit will be $\frac{100}{125}$ of $10,000.00, or $8,000.00, and the bonus will be the other $\frac{25}{125}$ of $10,000.00, or $2,000.00.

To generalize from the second case above and to arrive at an adequate formula for computation, if the bonus is represented by the letter B, the net profit from operations before the deduction of the bonus by P, and the per cent of the bonus by the letter b, then

$$B = \frac{b}{100}(P - B),$$

$$\text{then } 100\,B + b\,B = b\,P,$$

$$\text{or } (100 + b)\,B = b\,P,$$

$$\text{or } B = \frac{b\,P}{100 + b}.$$

Voluntary Retirement of a Partner.—The partnership is a peculiarly unstable form of business organization because of the many possible happenings which may deprive it of one of the members. Whenever this occurs, the firm is automatically dissolved. A partnership "at will" is one from which a member may withdraw at any time without incurring liability for damages to the other partners, provided the one who withdraws give such notice as is required by the agreement of copartnership. Likewise, voluntary withdrawal may be effected at any time provided the other partners consent, even though the contract has been framed to cover a definite term of years.

A retiring partner is liable to firm creditors for all debts contracted by the partnership previous to his withdrawal; even though the remaining partners agree to assume such liability, only written releases from such creditors can assure him freedom from these obligations in case the other partners fail to meet them. It is, however, possible for him to protect himself against liability for the debts contracted after his withdrawal. He should notify in writing all persons and organizations that have extended credit to the firm during his membership, of the severance of his connection with the firm. Non-dealers, persons and organizations other than past and present creditors of the firm, should be notified by publication in a newspaper of general circulation in the county in which the partnership has its principal place of business. In case the remaining partners have agreed to assume all the firm liabilities, the withdrawing partner should state this fact in the notice of dissolution. Although the retirement of a partner technically dissolves the copartnership, the business may continue under the remaining owner or owners as a sole proprietorship or as a new partnership. Notice of dissolution is not necessary when the disruption is the result of the operation of the law or of judicial decree.

When a partner voluntarily withdraws and the business is to continue, it is necessary to close the books with the greatest possible care. Not only should there be adjustments for current accruals, deferments, and depreciation, but it is also essential that any past errors affecting the relative interests of the partners in the net worth or modifying the total net worth be rectified. If assets have appreciated or slumped in value, if goodwill has been created or lost, the proper adjustment should be made. Of course such adjustments are greatly facilitated if the articles of copartnership provide explicitly for the revaluation methods to be used in case of dissolution. Upon such an occasion it is legitimate to write inventories or fixed assets up or down to their current market value, or even to set up goodwill. Such a departure from the strict valuation rules for a going concern is justified by the fact that the firm is dissolving, and that each member should bear his entire share of the losses and receive his entire portion of the gains. By way of illustration, suppose that A, B, and C are partners sharing profits equally. As C is about to withdraw, an appraisal reveals an increment of $3,000.00 in the value of the merchandise inventory and a goodwill of $15,000.00 which has never been placed on the books. The entry might be:

Merchandise Inventory	$ 3,000.00	
Goodwill	15,000.00	
A, Capital		$ 6,000.00
B, Capital		6,000.00
C, Capital		6,000.00
To set up on the books the goodwill and the increase in value of the merchandise on hand over cost.		

Such an entry would place upon the books the entire increment as revealed by the appraisal. It would be more conservative, however, to record only the share of this increase belonging to C, thus:

Merchandise Inventory	$ 1,000.00	
Goodwill	5,000.00	
C, Capital		$ 6,000.00
To set up on the books the share of the value increments belonging to C.		

Such an entry is consistent even with the conservative principles of valuation for a going business, since it places upon the books only such value increments as the continuing proprietor or proprietors actually pay for. These increases are really paid for, as the withdrawing partner is credited with them and is given their actual equivalent in cash or other considerations upon his retirement. It should be noted that if the business is being discontinued there is little chance that goodwill has any value at all.

It may be impossible to value accurately all the assets or liabilities when a partner is withdrawing. For example, the partners may not then know whether contingent liabilities will become actual, and they may be unable to predict just how much will be realized on the accounts and notes receivable. If they can agree on the valuation of all these doubtful items, the retiring member's interest may be satisfactorily fixed. It may be more agreeable, however, for the retiring partner not to withdraw his full credit until these questions have been settled. For example, it may appear that in the partnership of A, B, and C, the latter's share of the maximum probable losses would be $3,000.00, and the entries for his withdrawal would then read:

C, Capital	$ 3,000.00	
C, Special		$ 3,000.00
To set up a special account to charge with C's share of possible losses on assets of the partnership and of contingent liabilities existing this day. (The particular assets and contingent liabilities hereby provided for being as follows: ———)		
C, Capital	20,000.00	
Cash (or other asset accounts)		20,000.00
To record withdrawal by C of the balance of his capital account.		

After C's retirement, the remaining proprietors should keep separate the accounts with customers at the dissolution and all subsequent debits to trade debtors, it thus being possible for them to charge to C's special account his share of any losses on their old accounts. When all the old accounts and notes receivable have been disposed of, and the old contingent liabilities have ceased or have been met, the retired partner should be paid the credit balance in his special account.

The method by which the retiring partner is paid depends on the agreement. He may withdraw his final capital balance in cash or in valued assets when he leaves the firm, or he may accept notes of the remaining proprietor or proprietors for the whole or a part of the sum due him. His capital balance may be transferred to a personal or a special account to be liquidated by those remaining in the business as rapidly as possible or according to some agreed-upon schedule. Of course if the term of a partnership is closing, or if it is a partnership at will, the withdrawing member can compel the sale of all the assets, the liquidation of the liabilities, and the distribution of the remaining cash to the owners. Such a procedure is seldom desirable, however, because a forced sale greatly sacrifices asset values without making any compensating reductions of liabilities.

Death of a Partner.—A partnership is instantaneously dissolved by the death of one of its members. Under the common law the surviving partner or partners should forthwith take inventory and proceed to close the books, thus determining the interest of the estate. Settlement with the estate entails the sale of all the assets and the complete liquidation of the business. The surviving partners, however, have sole power to close the affairs of the firm, the executors or administrators of the deceased's estate having no voice or authority except as they may appeal to the courts for relief from fraud or misconduct. The surviving partners have no right to procure new business, their legal powers being confined to those steps necessary to wind up the enterprise.

Such disruption of the business, however, is so uneconomical that it is often forestalled in the articles of copartnership. Sometimes the contract provides for the continuation of the partnership by the administrator or executor of the partner who died; but such a contract does not make this procedure compulsory for him—it merely gives him the right. Another device is to provide that some designated heir shall succeed to the membership. This may be satisfactory, provided the will of the deceased is consistent with the agreement. Technically, either of these devices provides for the immediate formation of a new partnership rather than for a continuance of the old.

The losses of forced dissolution may be lessened by providing in the articles of copartnership some definite way of establishing the interest of the deceased at the time of his death. For example, it may be agreed that his interest shall be the balance in his capital account less his drawings plus a sum equal to his profits for the preceding year multiplied by the number of days since the books were last closed divided by the number of days in the year. In such a case an entry would be made crediting the account of the deceased partner with the estimated share of profits and debiting Profit and Loss. The balances in the capital and drawing accounts would then be transferred to an account with his estate, which would be entitled to interest to the day of settlement. Such an agreement should give the surviving partners the right to continue the business as a new firm. Such a privilege might make it much easier for the remaining partners to settle with the estate with a minimum of sacrifice, or, indeed, without loss.

An alternative method of determining a deceased partner's interest is the provision, in the articles of copartnership, of the stipulation that, at death, his capital and personal accounts shall be closed into a special account with his estate, and that at the close of the accounting period the profits shall be determined and an agreed portion thereof credited to the estate. This portion may be the full share that would have gone to the deceased had he lived, less an allowance for the loss of his services, or his proportionate part of the profits for the period up to his death plus interest for the balance of the time, or any other equitably determined share.

If the settlement with the estate has to be made in cash, liquidation of the business may be necessary even though time is allowed for making the payment. On the other hand, certain of the heirs may be willing to accept interest-bearing partnership notes in lieu of cash. Such a procedure might save the business from disruption, with no loss to the heirs. A wise protection for the estate and the interests of the surviving partners is the provision of a joint life insurance policy on the lives of all of the partners, payable to the survivors rather than to the partnership. Such a policy would enable the survivors to buy from the estate its interest in the business without taxing severely either the resources of the business or their own private fortunes.

Transfer of an Interest in a Partnership.—A partner may transfer a part of his interest to one of his copartners without affecting the life of the firm, provided the transferor remains a real member. The entry for such a transfer would be a debit to the capital account of one and a credit to the capital account of the other. However, in case one partner transfers his entire interest to one or more of his copartners, the firm is dissolved. The business may be continued, but only as a new organization. The accounts will merely record the debit to the capital account of the retiring partner, and the credit or credits to the account or accounts of the remaining partner or partners. The consideration for a transfer of interest in whole or in part between partners is a private matter which will ordinarily not appear on the books of the firm. Suppose, for example, that A, B, and C are partners, each of whose capital accounts has a credit balance of $10,000.00. A, desiring to have a one-half interest, buys one-half of C's interest. The entry on the partnership books will be:

C, Capital	$ 5,000.00	
A, Capital		$ 5,000.00
To record transfer of capital from C to A, giving A a one-half interest in the capital and the profits of the firm, and reducing C's interest to one-sixth.		

This, or a similar entry, will be made whether A paid $10,000.00 for half of C's interest or received it as a gift.

If, however, a partner sells a part or all of his interest to a "stranger," an outsider, the partnership is dissolved. The purchaser may demand an accounting to determine his share and may insist upon being paid that portion, but he has no legal right to claim membership in the partnership. The remaining partners may bring an action for damages against the one who sold out and thus dissolved a profitable relation, and they may refuse admission to the purchaser. Frequently, however, such transfers to strangers are made with the hearty approval of the other partners, the purchaser being received cordially; but he is received into a new firm, for the sale to him dissolved the old one. However, as the business is to continue, it is unnecessary to open new books. The event can be recorded by a debit to the capital account of the old partner and a credit to that of the new, of the amount of the capital interest transferred, regardless of the consideration, which is a personal matter.

Investments in a Partnership to Secure Interests.—When a new partner is received in a firm upon his investment in the partnership, an entirely new situation is presented, for the price of his interest is then recorded on the books. Of course, a new partnership is created. If he is to receive credit for the exact amount he invests, the entry will be a debit to cash or to the asset accounts best describing his contribution, and a credit to his capital account. As an illustration, suppose that A and B are partners having capitals of $24,000.00 and $12,000.00 respectively, and sharing profits in the ratio of their capital. They admit C to a one-fourth interest in the firm on payment by him into the partnership treasury of $12,000.00. The entry on the books would be journalized thus:

Cash	$12,000.00	
C, Capital		$12,000.00
To record admission of C to a one-fourth interest in the partnership.		

The incoming partner may receive credit for less than he actually invests, and in such case he is giving a bonus to the old partners. For example, in the case of A and B given above, if C is admitted to a one-fourth interest on condition that he pays in $16,000.00, he is obviously paying more than one-fourth of the total resulting capital of $52,000.00. The difference is a bonus which goes to the old partners in their profit-sharing ratio. The entry would be:

Cash	$16,000.00	
C, Capital		$13,000.00
A, Capital		2,000.00
B, Capital		1,000.00
To record admission of C as a partner entitled to a one-fourth interest in capital and profits upon payment of $16,000.00, of which $3,000.00 is a bonus to the old partners.		

C might demur to such an arrangement. If he was willing to invest $16,000.00 for a one-fourth interest in the firm, A and B might more readily win his consent if before C made payment, goodwill was set up sufficient to make the firm's capital amount to four times his contribution, thus:

Goodwill	$12,000.00	
A, Capital		$ 8,000.00
B, Capital		4,000.00
To set up goodwill previous to admission of C as a partner.		

Cash	$16,000.00	
C, Capital		$16,000.00
To record the admission of C as a one-fourth partner as to share of capital and of profits.		

These entries illustrate a widespread practice of valuing goodwill and setting it upon the books before the sale of a business or a change in the proprietorship. It is a perfectly justifiable practice as long as the goodwill really exists.

The new partner may demand more credit than the cash or other tangible assets he contributed, and in such a case he will receive either a bonus from the old members, or credit for bringing goodwill to the firm, according to the agreement. If A and B are partners with capitals of $24,000.00 and $12,000.00 respectively and share profits and losses in their capital ratio, and if they admit C to a one-fourth interest upon his paying $8,000.00 into the partnership, they might allow him credit for $4,000.00 as representing the goodwill he adds, thus:

Cash	$ 8,000.00	
Goodwill	4,000.00	
C, Capital		$12,000.00
To record the admission of C as a partner entitled to a one-fourth interest in capital and in profits upon his contribution of $8,000.00 in cash and $4,000.00 in goodwill.		

This would give C one-fourth of the capital of $48,000.00 without necessitating any diminution of the original partners' capital. If, however, C is to be admitted to a one-fourth interest without establishing any goodwill but for the investment of $8,000.00, A and B are obviously making a contribution to the capital of their new partner. Since C's payment would raise the total capital to $44,000.00, these contributions would appear thus:

Cash	$ 8,000.00	
C, Capital		$ 8,000.00
To record contribution of C to capital of the firm.		
A, Capital	2,000.00	
B, Capital	1,000.00	
C, Capital		3,000.00
To record bonuses of A and B to C to give him a one-fourth interest in the capital of the firm.		

When a new partner is investing in an old firm, the contract for the new partnership must therefore be explicit as to the terms of admission. It must provide specifically the amount which he is to contribute, the credit to be made to his capital account, whether he is to receive credit for goodwill or a bonus for entering, whether the old partners are to set up goodwill before receiving him, whether they are demanding a bonus from him, and, finally, how the profits are to be shared.

If certain of the data are given in the contract the rest can sometimes be inferred, but it is far better to err on the side of over-meticulous accuracy than ambiguity.

Partnership Liquidations.—When a partnership is actually going out of business, the assets must be converted into cash or "realized," and the liabilities paid or "liquidated." The cash is used to liquidate liabilities in the following order: preferred creditors, other creditors, partners' loans, and whatever is left goes to the partners for the return of their capital investments. Of course, secured creditors are satisfied out of their security before anything from that source is available for the other creditors. In the absence of specific agreement to the contrary, any gains or losses during liquidation are shared in the profit and loss ratio. Suppose that A, B, and C are partners sharing profits and losses equally but having capitals of $15,000.00, $8,000.00, and $4,000.00 respectively. They have liabilities of $10,000.00 and assets valued on the books at $37,000.00. Obviously if the realization of the assets nets $37,000.00 there will be enough to pay the liabilities and to return to each partner his capital intact. Suppose, however, that the assets are sold for $28,000.00. There is a loss of $9,000.00 which must be distributed equally among the three partners. The $28,000.00 will then be distributed, $10,000.00 to pay the liabilities, $12,000.00 to A, $5,000.00 to B, and $1,000.00 to C. In other words the cash available is distributed among the partners, not in proportion to their capitals, but in proportion to their capitals minus the proportionate shares of losses. A statement of the partners' capitals would appear as in Figure 94.

STATEMENT OF PARTNERS' CAPITALS

	A, Capital	B, Capital	C, Capital	Total
Balance per books	$15,000.00	$8,000.00	$4,000.00	$27,000.00
Loss on Realization, distributed equally	3,000.00	3,000.00	3,000.00	9,000.00
Cash Payments to Partners	$12,000.00	$5,000.00	$1,000.00	$18,000.00

FIGURE 94

The problem becomes more complex, however, if the losses more than exhaust the capital of one or more of the partners. To illustrate, suppose that the assets originally valued at $37,000.00 in the preceding case realized only $22,000.00, of which $10,000.00 was needed to liquidate the liabilities, leaving $12,000.00 for the partners. The loss would be $15,000.00 which, distributed equally, would leave capital balances of $10,000.00 for A, $3,000.00 for B, and $1,000.00 debit for C. That is, C will owe $1,000.00 to the partnership. If he pays this money to the firm, A will receive $10,000.00 and B will receive $3,000.00. If, however, it is impossible to collect from him, there will be an additional loss of $1,000.00 which must be shared equally by A and B, who will therefore receive $9,500.00 and $2,500.00 respectively. The Statement of Partners' Capitals in Figure 95 shows the situation where C has not made good his $1,000.00 deficit, regardless of whether or not he will do so in the future. If C pays his $1,000.00, and if it is divided equally between A and B, each of the partners will have lost exactly $5,000.00. On the other hand, if C fails to make good, A and B will each have lost $5,500.00. This may be proved by deducting the cash received from the balance in the capital account before realization.

If partners have made loans to the firm, their loans are nominally payable before their capitals; but this does not mean that one partner's loan will of necessity be paid before the capital of the other partner or partners, for such preference might preclude the sharing of losses according to the contract. In case losses reduce a partner's capital to a debit balance, that balance is offset against any loan he may have made to the firm, for otherwise he would be in the peculiar position of receiving, as payment for his loan, money that he would be under obligation to return immediately in order to reduce his capital deficit. To illustrate this principle, assume that A, B, and C are partners with capitals of $12,000.00, $6,500.00, and $4,000.00 respectively, sharing profits equally. C has loaned to the firm $1,500.00, and B has loaned $1,000.00. They decide to liquidate, and, after paying all their liabilities and selling all their assets, they have $7,000.00 in cash. Since there has been a loss of $18,000.00, one-third thereof, or $6,000.00, must be borne by each partner. Thus the capital balances will be reduced to $6,000.00 for A, $500.00 for B, and $2,000.00 debit for C. C's credit balance of $1,500.00 in his loan account will be set off against the deficit of $2,000.00 in his capital account, thus reducing his net debt to the firm to $500.00. If C can make good this $500.00, A will receive $6,000.00 to retire his capital, and B will receive $1,000.00 to retire his loan and $500.00 to pay off his capital. On the other hand, if C

STATEMENT OF PARTNERS' CAPITALS

	A, Capital	B, Capital	C, Capital	Total
Balance before realization	$15,000.00	$8,000.00	$4,000.00	$27,000.00
Loss on realization, distributed equally	5,000.00	5,000.00	5,000.00	15,000.00
Balance after realization	$10,000.00	$3,000.00	$1,000.00[a]	
Cash distribution	9,500.00	2,500.00		$12,000.00
Balance after distribution	$ 500.00	$ 500.00	$1,000.00[a]	

[a] Debit balance.

FIGURE 95

does not pay the $500.00, the capitals of A and B cannot be retired fully, $5,750.00 being paid on A's capital, $250.00 on B's capital, and $1,000.00 on B's loan. B's loan is thus paid in full in preference to any payment on his capital, but C's loan has been offset by his capital deficit. In short, a partner is not relieved of his share of a loss on liquidation merely because part of his interest in the firm has taken the form of a loan; but a partner's loan is paid in preference to his capital because his losses are charged against his capital until it is exhausted, before they are charged against his loan. Figure 96 summarizes the transactions in this illustration.

STATEMENT OF PARTNERS' INTERESTS

	A, Capital	B, Capital	C, Capital	B, Loan	C, Loan	Total
Balance before realization	$12,000.00	$6,500.00	$4,000.00	$1,000.00	$1,500.00	$25,000.00
Loss on realization	6,000.00	6,000.00	6,000.00			18,000.00
Balance after realization	$ 6,000.00	$ 500.00	$2,000.00[a]	$1,000.00	$1,500.00	$ 7,000.00
Set-off of C Loan against C Capital			Cr. 1,500.00		Dr. 1,500.00	
Cash distribution	5,750.00	250.00		1,000.00		7,000.00
Balance after cash distribution	$ 250.00	$ 250.00	$ 500.00[a]			

[a] Debit balance.

FIGURE 96

If a partnership is to be liquidated in one cash distribution, the procedure may be summarized as follows:

1. Convert all the assets into cash, unless creditors or partners are willing to accept other assets at fair valuations.
2. Pay off all liabilities before distributing cash to partners. If there is not enough cash to liquidate liabilities to outsiders in full, these outsiders can collect from any general partner who has the means.
3. Distribute the gains or losses in the liquidation among the partners in the profit-and-loss sharing ratio, charging the losses against the partners' capital accounts, and crediting the gains thereto.
4. If any partner has a capital deficit, set it off against his loan account if he has one.
5. If, after all set-offs possible, any partner still shows a capital deficit, attempt to collect that deficit. Payments to creditors outside of the firm from a partner's personal estate may reduce or counterbalance his capital deficit.
6. If cash is to be distributed to partners before the amounts in the capital account of any partner having a capital deficit has been collected, pay to the partners having credit balances only what they would receive if the attempt to collect from the other partner should fail completely, thus leaving as credit balances in the accounts of these partners amounts equivalent to their shares of the loss if the delinquent partner fails to pay. The loan accounts of partners not having debit balances in their capital accounts will be paid before anything is paid on their capital accounts, in the sense that losses are charged against capital accounts until these are exhausted before losses are charged against loan accounts.

WORK SHEET

TO DETERMINE LIQUIDATING DIVIDENDS

	A, Capital	B, Capital	C, Capital	A, Loan	Totals
Profit and loss ratio	(50%)	(40%)	(10%)		
Balance before realization	$40,000.00	$30,000.00	$30,000.00	$2,000.00	$102,000.00
June 30					
Realized loss	1,000.00	800.00	200.00		2,000.00
Balance after loss	$39,000.00	$29,200.00	$29,800.00	$2,000.00	$100,000.00
Possible loss if unrealized assets are of no value	45,000.00	36,000.00	9,000.00		90,000.00
Balance after possible loss	$ 6,000.00[a]	$ 6,800.00[a]	$20,800.00	$2,000.00	$ 10,000.00
Possible set-off of A Loan against A Capital	Cr.2,000.00			Dr.2,000.00	
Balance after set-off	$ 4,000.00[a]				
Possible deficit of A and B, borne by C	Cr.4,000.00	Cr.6,800.00	Dr.10,800.00		
First Cash Distribution			$10,000.00		$ 10,000.00
Balance after first cash distribution	$39,000.00	$29,200.00	$19,800.00	$2,000.00	$ 90,000.00
July 31					
Realized loss	1,500.00	1,200.00	300.00		3,000.00
Balance after loss	$37,500.00	$28,000.00	$19,500.00	$2,000.00	$ 87,000.00
Possible loss if unrealized assets have no value	37,250.00	29,800.00	7,450.00		74,500.00
Balance after possible loss	$ 250.00	$ 1,800.00[a]	$12,050.00	$2,000.00	$ 12,500.00
Possible deficit of B, to be borne by by A (5/6) and by C (1/6)	Dr.1,500.00	Cr.1,800.00	Dr.300.00		
Balances after distribution of possible deficit	$ 1,250.00[a]		$11,750.00	$2,000.00	$ 12,500.00
Possible set-off of A Loan against A Capital	Cr.1,250.00			Dr.1,250.00	
Second Cash Distribution			$11,750.00	$ 750.00	$ 12,500.00
Balance after second cash distribution	$37,500.00	$28,000.00	$ 7,750.00	$1,250.00	$ 74,500.00
August 31					
Realized gain	300.00	240.00	60.00		600.00
Balance after gain	$37,800.00	$28,240.00	$ 7,810.00	$1,250.00	$ 75,100.00
Possible loss if unrealized assets have no value	30,000.00	24,000.00	6,000.00		60,000.00
Third Cash Distribution	$ 7,800.00	$ 4,240.00	$ 1,810.00	$1,250.00	$ 15,100.00
Balance after third cash distribution	$30,000.00	$24,000.00	$ 6,000.00		$ 60,000.00

[a] Debit balance.

FIGURE 97

7. If no partner has a capital deficit, pay to each partner the amount shown in both his loan account and his capital account.

Partnership Liquidation in Installments.—When a solvent partnership is to be liquidated, it may be impossible to realize all of the assets in a short time. Nevertheless, the partners will want their money as quickly as possible. The partner or other person in charge of the liquidation should, of course, sell the assets as rapidly as is consistent with avoiding too great a sacrifice of their values. However, he should pay no partner one penny until enough cash is in hand to pay all the liabilities and the expenses incurred in dissolution. When these liabilities have been met, any additional cash received can be used as a dividend to the partners. In paying such a dividend, however, care must be exercised to prevent paying to any firm member money that he might be called upon to refund in case there should be losses incurred in the sale of the unrealized assets. Therefore, as each installment is distributed, it should be divided among the partners as if it were the last money that would ever be realized for the firm, and as if there were no expectation of a partner making good any capital deficit that his account might show in case all the unrealized assets proved worthless. Only by such precautions can the person responsible for the cash in the liquidation avoid all possibility of being compelled to accept liability for an overpayment to a partner who proves to be unable to make a necessary refund.

STATEMENT OF PARTNERS' CAPITALS

	A, Capital	B, Capital	C, Capital	A, Loan	Totals
Balance before realization	$40,000.00	$30,000.00	$30,000.00	$2,000.00	$102,000.00
June 30					
Realized loss	1,000.00	800.00	200.00		2,000.00
Balance after loss	$39,000.00	$29,200.00	$29,800.00	$2,000.00	$100,000.00
Cash distribution			10,000.00		10,000.00
Balance after distribution	$39,000.00	$29,200.00	$19,800.00	$2,000.00	$ 90,000.00
July 31					
Realized loss	1,500.00	1,200.00	300.00		3,000.00
Balance after loss	$37,500.00	$28,000.00	$19,500.00	$2,000.00	$ 87,000.00
Cash distribution			11,750.00	750.00	12,500.00
Balance after distribution	$37,500.00	$28,000.00	$ 7,750.00	$1,250.00	$ 74,500.00
August 31					
Realized gain	300.00	240.00	60.00		600.00
Balance after gain	$37,800.00	$28,240.00	$ 7,810.00	$1,250.00	$ 75,100.00
Cash distribution	7,800.00	4,240.00	1,810.00	1,250.00	15,100.00
Balance after distribution	$30,000.00	$24,000.00	$ 6,000.00		$ 60,000.00

FIGURE 98

The method of determining what payments are proper, when liquidation is to be in installments, can be illustrated by the work sheet in Figure 97, and the Statement of Partners' Capitals in Figure 98. These figures are based on the following data: A, B, and C are partners sharing profits in the ratio: A, 50 per cent; B, 40 per cent; and C, 10 per cent. Their capital accounts show balances after closing the books of $40,000.00 for A, $30,000.00 for B, and $30,000.00 for C, A having loaned the firm $2,000.00. During June they realize on their assets an amount sufficient to pay all the liabilities and to supply $10,000.00 for a liquidating dividend to themselves, but they have sustained losses of $2,000.00 in the sales. The question arises as to how this $10,000.00 should be shared.

The realized loss of $2,000.00 should be distributed to the partners at once in the loss-sharing ratio as shown either in the work sheet or in the Statement of Partners' Capitals. This loss is a definite fact: it reduces the total interests of the partners to $100,000.00. Since there is only $10,000.00 on hand for distribution, it is assumed for purposes of computation that nothing will be realized on all the other assets. Therefore, on the work sheet, an assumed loss of $90,000.00 is distributed in the loss-sharing ratio. The division of this assumed loss leaves A with a capital deficit of $6,000.00 and B with a capital deficit of $6,800.00; but $2,000.00 of A's deficit can be offset by his loan, giving him a net capital deficit of $4,000.00. Since the $90,000.00 loss is at this point imaginary, no demand is made on A or B for cash, but their deficits are tentatively charged against C's capital, bringing his balance down to $10,000.00. Therefore the cash is all given to C, leaving the capital balances as shown either in the work sheet or in the Statement of Partners' Capitals: A, $39,000.00; B, $29,200.00; C, $19,800.00, and A, Loan, $2,000.00. Should there be complete failure to realize on the remaining assets, A would owe C $4,000.00, and B would owe C $6,800.00.

During July assets valued on the books at $15,500.00 were sold for $12,500.00, entailing a realized loss of $3,000.00. This loss was immediately distributed, leaving the partners' interests at $87,000.00. Should the $12,500.00 be the last value to be obtained from the assets, there would be a further loss of $74,500.00 to be borne by the partners in the profit-and-loss ratio. When such an assumed loss is tentatively distributed on the work sheet it leaves A with a tentative capital balance of $250.00, and C with $12,050.00, while B has a deficit of $1,800.00. When this deficit is distributed, five-sixths to A and one-sixth to C, C has a tentative capital of $11,750.00, but A has a capital deficit of $1,250.00 which is set off against his loan, leaving $750.00 in the loan account. The second cash distribution, therefore, will be $750.00 to A to apply on his loan, and $11,750.00 to C. Thus the accounts are left with capital balances of $37,500.00 for A, $28,000.00 for B, and $7,750.00 for C, A's loan having been reduced to $1,250.00. No demand is made on B for cash because additional assets are still to be realized, if possible.

During August, assets with a book value of $14,500.00 were sold for $15,100.00, a gain of $600.00, which is distributed to the capitals of the partners. In calculating the proper distribution of the $15,100.00 cash to be divided August 31, it is therefore assumed that further losses of $60,000.00 are possible. A tentative distribution of this loss on the work sheet leaves the capital accounts with balances of $7,800.00 for A, $4,240.00 for B, and $1,810.00 for C. If these amounts are paid to the partners, together with the $1,250.00 remaining in A's loan account, the $15,100.00 will be used completely. After these payments the capitals of the three partners will be in their profit-and-loss sharing ratios, and any further cash may therefore be distributed in the capital ratios, a basis of division which would have been incorrect at the end of any of the first three months.

When a solvent partnership is liquidated in installments, the proper distribution of each installment can be determined by the use of a work sheet, according to the following rules:

1. Distribute any realized losses or gains in the loss-or-gain sharing ratio.
2. Having provided for the payment of all liabilities to outsiders, determine the possible loss if all the unrealized assets prove worthless, and distribute this loss tentatively to the partners.
3. Offset any deficits in the partners' capital accounts by their loan accounts so far as possible.
4. Distribute any deficits in partners' capital accounts which cannot be absorbed in their respective loan accounts to the partners with credit capital balances in the loss-sharing ratio among these partners.
5. If the distribution of a partner's deficit to the other partners results in a deficit in the capital account of one or more of these other partners which cannot be made up from a loan account, charge this deficit, also tentatively, to the capitals of the partners who still have credit capital balances.
6. When the last capital deficit not offset by a loan has been distributed, the remaining credit balances in the partners' capital and loan accounts are the amounts of cash that they should receive.
7. If the point is reached where installments have reduced the capital balances of the partners to the profit-and-loss ratio, provided the loans have been paid, future installments may be in the profit and loss, or in the capital ratio, for the two ratios have become identical.

8. In calculating the amount of payment to the several partners on any installment subsequent to the first, begin the computation with the balances in the partners' respective loan and capital accounts after distributing all known gains or losses and after debiting the partners for all payments they have received.
9. If all the assets have been realized, and the final installments paid, partners having deficits in their capital accounts should be called upon to pay these deficits to the partnership for distribution to those, whose loan or capital accounts show credit balances.

Liquidation of an Insolvent Partnership.—Common law provides that if a partnership is insolvent, its entire assets shall be used to satisfy the firm creditors before any of their investments are returned to the partners. Should the firm assets not suffice to satisfy the firm creditors, they can obtain full payment from any partner or partners who have the means. The partner who meets such demands out of his private funds can use such payments to offset whatever he may owe to the partnership; and any excess payment to creditors beyond his capital deficit becomes a claim on other partners who may have capital deficits. On the other hand, if a member of a partnership is insolvent, his personal creditors have a right to be satisfied in full from his personal assets before they have recourse to his interest in the firm. Their claim to his interest in the firm is completely subordinate to the claims of the firm creditors, just as the latter's claims to the partner's personal assets are completely subordinate to those of his personal creditors on his personal assets. The claim of a partner having a credit capital balance becomes a personal claim against one having a debit capital balance.

LIQUIDATION STATEMENT

	A, Capital	B, Capital	C, Capital	Liabilities	Total
Balance before realization	$ 9,000.00	$18,000.00	$ 8,000.00	$40,000.00	$75,000.00
Distribution of loss on realization	15,000.00	15,000.00	15,000.00		45,000.00
Balance after distribution of loss	$ 6,000.00[a]	$ 3,000.00	$ 7,000.00[a]	$40,000.00	$30,000.00
Distribution of cash				30,000.00	30,000.00
Balance after cash distribution	$ 6,000.00[a]	$ 3,000.00	$ 7,000.00[a]	$10,000.00	

[a] Debit Balance.

FIGURE 99

These rules sometimes result in complicated relationships. Suppose that A, B, and C, are partners, with capitals of $9,000.00, $18,000.00, and $8,000.00 respectively. Their liabilities are $40,000.00, and the book value of their assets is $75,000.00. The partnership, having its capital tied up in fixed assets, decides to liquidate. The forced sale of the assets nets only $30,000.00, which means that the firm is insolvent.

The situation is exhibited in Figure 99, on the assumption that partners share losses equally. The creditors, having received only 75 per cent of their claims from the firm assets when the entire proceeds of the realization were paid out to them, naturally seek satisfaction from the estates of the partners as individuals. They find that A has personal assets of $10,000.00 and personal liabilities of $14,000.00, B has personal assets of $7,500.00 and personal liabilities of $18,000.00, and C has personal assets of $40,000.00 and personal liabilities of $10,000.00. As it appears that both A and B are insolvent, the firm creditors cannot claim their personal assets. C, however, having ample personal means, pays the $10,000.00 necessary to satisfy the firm creditors in full. Had he not done so, these creditors could have obtained judgment against him for the whole $10,000.00. In paying the firm creditors, C not only made up his capital deficit of $7,000.00 but acquired a capital credit of $3,000.00. At this point the capital credits of B and C together equal the capital debit of A.

Since the claims of B and of C on A are personal debts of A, A's total liabilities are $20,000.00. His assets are sufficient to pay 50 per cent of his liabilities, so that $1,500.00 from his funds will be due to C, and $1,500.00 to B's creditors. B's assets will thus be raised to $9,000.00, which will pay 50 per cent of the claims of his creditors. In this illustration the personal exemption of property, the order of preference of creditors, and the costs of liquidation have been ignored in order that attention might be focused on the central problem of the relative rights of firm creditors and personal creditors to the assets of the partnership and of the partners as individuals.

Summary.—When a partner sells all or part of his interest to a stranger, the act dissolves the partnership, the purchaser of the interest having the right to force liquidation but not becoming a member of the firm unless the other partners agree to receive him into what is technically a new firm. If he is received into the partnership, regardless of the price he paid, the entry on the books of the business transfers from the capital account of the selling partner to the new partner's capital account is exactly the interest transferred.

When a new member enters a technically new partnership by contributing funds, there is a debit to cash or other asset accounts and a credit to the new partner's capital account. However, part of the contribution of the new member may go to the capital accounts of the old members as a bonus to them, or the old members may contribute a bonus out of their capitals to his capital. On the other hand, the old partners may set up goodwill, crediting their capital accounts in the profit-sharing ratio, before admitting him, or they may credit his capital account and debit goodwill for the intangible asset he is believed to contribute. The conditions of the entrance of a new partner are entirely a matter of contract.

When a partnership liquidates, the situation is partly a matter of law and partly a matter of contract. The law provides that the firm creditors must be paid in full before any assets of the firm are distributed to the partners, that the firm creditors can obtain satisfaction from the personal estates of solvent partners even though those partners' capital accounts show credit balances, and that the personal creditors of partners have the first right to satisfaction from the personal assets of their debtor partners. Contract determines the manner in which partners share losses. If, after all losses have been entered on the books and all liabilities paid, one partner has a capital deficit and the other a capital credit, there is a personal debt of one to the other. Losses through the inability of partners to make good their capital debits are divided in the loss-sharing ratio among the partners with capital credits. If liquidation is by installments, care must be taken to pay to no partner more than he would receive should all of the unrealized assets prove valueless. A partner's loan to the firm must be used to offset his capital deficit to the full extent of the deficit before the loan may be paid.

QUESTIONS

1. A and B are partners with capital accounts of $12,000.00 each. They offer C a one-third interest in the firm for $6,000.00. They are willing to give C a bonus of $4,000.00 from their capitals, or to credit him with $6,000.00 for goodwill, in addition to the $6,000.00 for his cash contribution. Which proposition should C choose?
2. What precautions should be taken by a retiring partner? Why?
3. What differences are there in the principles of valuation of assets applied to a firm in liquidation and those applied to a going concern? Illustrate, and explain.
4. Suppose you are drawing up articles of copartnership. Draft a paragraph to provide for the settlement of its affairs in the event of the death of one of the partners.
5. Make a list of the losses that are liable to be sustained by a business in liquidation.
6. Using an illustration, show how, if a partnership were in liquidation, the distribution of cash in the ratio of the capitals might be a grave error.
7. Make up an illustration to show how, if a partnership were in liquidation, the distribution of cash in the profit-sharing ratio might be a grave error.
8. Discuss the status of partners' loans to the firm in the event of liquidation.

9. What are the differences in computation and procedure between liquidating a partnership in one cash distribution and in installments?
10. Why should partnership creditors, whose claims have not been satisfied out of the firm assets, be allowed to obtain full satisfaction out of the assets of some one partner, even though his capital account shows a credit balance?
11. Why is it impossible for a partner to bequeath to one of his family his interest and membership in the firm without the consent of the other partners?

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CHAPTER XX

ACCOUNTING FOR ESTATES AND TRUSTS

Executors and Adminstrators.—The typical person who possesses any considerable amount of property desires to direct the manner of its disposition after his death. This he accomplishes by signing in the presence of witnesses a document which he declares to be his "last will and testament." Provided the "testator" was of sound mind and free from undue influence when he made the will, the courts attempt to have carried out the terms of the prescribed distribution so far as they are legal. But wills cannot be obeyed save by human agency, and therefore the testator usually names in the testament an executor to act in his place in carrying it out. If the one so nominated in the will is alive, competent, and willing to act at the time of the testator's death, the court will generally appoint him executor unless strong evidence of his unfitness is presented. Should no executor be named, or should the one chosen by the decedent be unwilling or unable to act, the court will appoint an "administrator with the will annexed" to settle the estate. The individual so appointed receives his commission in the form of "letters testamentary" if he is an executor, or "letters of administration" if he is an administrator. He is called the "personal representative" of the decedent and he is usually required to provide bond to insure the faithful performance of his duty.

In the event that one possessed of property dies without having made a will, he is said to die "intestate." In that case his personal property passes to his heirs according to the laws of "distribution" in the state where he lives, and his real estate is distributed according to the laws of "descent" in the states where it is situated. Of course someone is appointed to settle the estate of an intestate, and such a person is called an administrator. Anyone interested in the estate may apply to the proper court for the appointment of an administrator, and, if there are conflicting interests, the court will hear all of them before making the appointment. Some states have specified by statutes the order of eligibility for this post, which usually begins with the spouse and works down in order of closeness of relationship or interest.

The powers and duties of the executors and administrators are so similar that they will be developed together in the next section.

Duties of the Personal Representative.—The first duty of an executor is probating the will, or filing it with the court and proving its validity, and to this end, the witnesses are examined as to the genuineness of the testator's signature and as to the fact that he declared the instrument to be his last will and testament and signed it of his own volition. Devisees and legatees are summoned to the hearing in order to secure jurisdiction and to give an opportunity for the presentation of later wills if any are claimed to exist or for dispute of the validity of the testament presented. If the person named as executor in the will fails to present it for probate, any interested party may take steps to prove the document and to have an administrator appointed. In many states there are special courts for the handling of estates, usually located in the most populous centers, and called Surrogate's Courts, Orphans' Courts, or Probate Courts. This duty of probate falls upon the one named as executor even though he has not been officially appointed by the court.

A second duty of the executor that does not fall upon the administrator is that of burying the body of the testator. Frequently, however, the executor is not appointed soon enough to undertake this task, and his responsibility thus is limited to meeting the bills for the funeral out of the estate, provided the charges are reasonable.

The third duty, to collect and to preserve the estate of the deceased, falls on both administrators and executors. Interested life insurance companies and banks should be notified promptly of the death and of the appointment of the personal representative. Since real estate passes directly to the heirs, only the personal property comes into the possession of the executor or administrator. It is interesting to note that if the decedent contracted to buy real estate, the personal representative is obliged to pay the contract price out of the personal property, but he never takes title, the land going directly to the heirs. On the other hand, the personal representative may give good title to real estate which the decedent had contracted to sell, but the sale price, collected by the personal representative, is personal property. In collecting the estate, he may have to exercise considerable ingenuity and legal knowledge to discover just what constitutes the "corpus," or body of the estate. For instance, interest which had accrued up to midnight of the date of the death is an estate asset, as are dividends that have been declared; but dividends do not accrue. Stock dividends, however, or very large extra dividends paid "out of surplus" accumulated previous to the death are frequently held by the courts to be part of the corpus. If life insurance is payable to a named beneficiary who is living at the time of the death, it is not part of the estate; but if the beneficiary has died and no successor has been named on the policy, or if the deceased is named as the beneficiary, the proceeds are part of the estate. Fire insurance due on claims or on premium refunds is part of the corpus even though the claim originated in damage to real estate. Ordinarily, growing crops are part of the land, but there are exceptions: if, for example, the deceased had sold land but reserved the growing crops, those crops are part of the personal estate. An interest in a sole proprietorship or in a partnership is part of the corpus. If the deceased died of injuries, the claim for damages is not an estate asset but a personal property of the widow or other dependent. The personal representative should make every effort to locate and possess all of the estate assets as rapidly as possible. If assets are believed to be in the possession of persons who refuse to give them over to him, he may institute "discovery proceedings" to gain custody.

In addition to collecting the estate, the personal representative must preserve it. Ordinarily he may not continue the operation of a business owned by the deceased, but the will may direct or permit such operation, or partnership agreements may call for its continuance for a stipulated time. Indeed, the continued operation of a business may be the only way to preserve its value to the estate; but the executor who undertakes operations without adequate authority from the will, the court, or the partnership contract, is doing so at his own risk. In the absence of agreement to the contrary, the books of a partnership or of a sole proprietorship in which the decedent had an interest should be closed as of the day of his death, in order to fix the value of the asset to the estate. However, the personal representative cannot interfere in the liquidation of the partnership except to prevent fraud. Money received should be deposited in a bank, it being advisable for the personal representative to have his choice of depository approved by the court. In case the estate is one which will require a long time for settlement, surplus funds may be invested in such securities as are approved by the terms of the will or are eligible for trustees. The care of the estate may involve taking insurance on property subject to insurable risks, defending suits at law, and collecting debts, although no suit should be brought to collect a hopeless debt. In other words, it is the duty of the personal representative to prevent any avoidable loss.

The fourth duty of the personal representative is the preparation of an inventory of the estate for presentation to the court. Although this inventory may not be complete when made, assets subsequently discovered can be included in supplementary reports. If necessary, expert appraisers may be employed in valuing the inventory, blanks for which are usually supplied by the clerk of the probate court. Technically only personal property is included in the inventory; but it is frequently well to list the real estate also, because the value of the entire estate, real and personal, is subject to estate and inheritance taxes. Indeed, some commonwealths now require that the inventory offered for probate purposes be the same as that submitted for calculation of the taxes. Certain articles are usually omitted from the inventory, such as the family Bible, housekeeping utensils, photographs, and schoolbooks, but the list should include such things of value as debts due the decedent, even though the will cancels them. Debts owed by the deceased are not mentioned in the inventory, but they are deductible in finding the net value of the estate for the purpose of the transfer taxes.

The fifth duty of the personal representative is to pay the obligations of the deceased out of his estate. Ordinarily the claims are required to be presented within a certain time limit, set by law, to the personal representative who passes on them subject to appeal to the court; but in some states the claims are presented to the court in the first place. Even unmatured and contingent claims should be filed to assure that sufficient cash is set aside to meet them at maturity or in case the contingency becomes an actuality. If the estate is insolvent, unsecured claims are met in the order prescribed by the law of the state or by the federal law governing bankruptcy. The most usual order of preference is (1) expenses of administration, including reasonable funeral bills, court costs, and the fees of the personal representative and of his attorney; (2) obligations to the government; (3) docketed judgments; (4) claims of unsecured creditors; and (5) legacies. The personal representative may find himself held personally liable if he disregards the legal order of preference in liquidating claims against the estate. Moreover, if he pays claims before they are due he should obtain a discount. The valid claims must be met out of the personal property, and in case it has to be sold to provide the money for liquidating debts, a court order must generally be secured. If the personal property does not realize sufficient funds to meet all the debts, then the court may order the sale of enough of the real estate to complete the liquidation. It should be noted, however, that a mortgage on real estate goes with the property, not being payable out of estate funds unless the will so directs. Another important point in some cases is the fact that the personal representative has no right to pay a debt on which the statute of limitations has run. Since claims not presented within the statutory limit are not valid, business houses usually subscribe to local financial or commercial papers which publish news of all deaths, probates, bankruptcies, and similar occurrences, thus being warned regarding the presentation of their claims

against an estate. The period in which an estate can be closed is usually prescribed by statute, the time frequently being eighteen months; but the same laws usually allow a settlement in a shorter period, sometimes six months, provided the personal representative advertises in newspapers of general circulation his readiness to receive and consider claims. Some states require such advertising to be made by all executors and administrators.

The sixth duty of the personal representative is the distribution of the property consistently with the terms of the will or according to the laws of the state. Real estate may be "devised" by the testator to a "devisee," but personalty is "bequeathed" to a "legatee." There are four classes of legacies: (1) A specific legacy is the bequeathal of a particularly designated article, such as a watch, an automobile, or a library; such a legacy is defeated if the property does not exist or has been alienated previous to the death of the testator. (2) A demonstrative legacy is one payable from some specified fund in cash; if the fund is insufficient the demonstrative legacy becomes general. (3) A general legacy is payable in cash from the general funds of the estate, but by agreement between the legatee and the personal representative other property of equivalent value may be transferred in lieu of cash. (4) A residuary legacy consists of "the rest, residue, and remainder" of the personal property after the debts and the other legacies have been met. In case it becomes necessary to dispose of assets of the estate in order to meet debts or expenses, the first assets to be sold would be those bequeathed to the residuary legatee, after which would be sold, in order, property bequeathed in general legacies, funds for demonstrative legacies, and property described for specific legacies. Or, more simply, if the personal property of the estate is insufficient to pay all claims and legacies, the first to suffer would be the residuary legatee, the second would be the general legatees whose benefits would be scaled down proportionately, and finally would come the recipients of demonstrative and specific legacies. If the personal property were all disposed of before the creditors had been satisfied completely, then the court would order sold, first, real estate not devised; second, real estate devised generally; and, third, real estate devised specifically.

Unless the will provides otherwise, legacies should not be paid within a year of the testator's death or within such shorter period as creditors are given to present their claims. If the will requires that they be paid before there has been time to ascertain whether there are sufficient funds to meet all obligations, the personal representative should obtain a bond from the legatee to insure the latter's refund of whatever may prove necessary, for this is his only protection from personal liability in the event the remaining estate proves insufficient. A widow ordinarily is entitled to "sustenance" from the personal estate pending final distribution. If one named as a legatee dies before the testator, the legacy lapses unless the designated recipient left a child or other descendant, or a brother or sister.

The seventh duty of the personal representative is to keep accounts. Usually no form of accounting is prescribed, but the data should be complete enough to enable him to make full reports to the court. Since an accounting may be called for years later, it is incumbent on the personal representative to have his accounts clear and to make reference to the court order which authorized the transaction recorded by each journal entry or unusual payment.

The eighth duty of the personal representative is to make reports to the court which appointed him. Intermediate reports may be made from time to time in advance of the final "account of proceedings." On the receipt and approval of this final report, the court will order that the administrator's or executor's fees be paid and the final installments of the legacies distributed, and, when this has been accomplished, the personal representative will be discharged.

Of these eight duties, the last six appertain to both executors and administrators. The first two, by their very nature, cannot be placed upon an administrator, although it might easily happen that the person who assumed them would be the selection of the court when it came time to appoint the personal representative. The duties expected of the personal representative are only such as would be thought of by any intelligent person who might be intrusted with the settlement of an estate. But the law is so unfamiliar to most persons who become administrators and executors that legal advice is generally necessary in order that these duties may be discharged without incurring personal liability.

The Accounts of the Personal Representative.—In opening his books for the estate, the personal representative should have in mind the fact that there will be estate taxes and taxes on the income of the estate to pay, that he should not mingle his own funds with those of the estate, that the income of the estate must be distinguished from the principal or corpus, that he must have such data as will enable him to pay the correct legacies to the several beneficiaries, and that he must be able to render accounts in the form desired by the court. If the estate is large, such accounting may necessitate the use of a cash book, a general journal, and a large ledger. If the estate is small, however, a "synoptic" or cash journal may suffice. The synoptic would have a debit and a credit column for each of the necessary estate accounts. Since transfers between accounts can be made on the face of the synoptic, there is no need for a ledger, all of the accounting being done in the one book. Sometimes a synoptic is used in which there is only one column for each account, debits being in black ink and credits in red, or *vice versa*; such great condensation is, however, generally undesirable. Whatever the type of books adopted, the authority for each entry should be shown by the notation of the folios of the public records concerned.

The opening entry will set up the inventory as presented to the court, and credit Estate Corpus or Principal of Estate, thus:

Principal Cash	xxxx	
4th Liberty Bonds	xxxx	
Stock of Blank Company	xxxx	
Notes Receivable	xxxx	
Accrued Interest Receivable	xxxx	
Household Furniture	xxxx	
Real Estate	xxxx	
Estate Corpus		xxxx

A cash account is always necessary, and some authorities advocate opening two, one for Principal Cash and the other for Income Cash. The first account is opened with the cash in the estate when the decedent died and records cash received from the disposal of the original estate assets and disbursed in payment of estate obligations and of legacies out of the corpus; the second records cash income received and disbursed. The bank account should be opened by the personal representative either in the name of the estate payable on his order as executor, or in his own name as executor (or administrator). If the estate is small, all the inventory items other than cash may be debited to one account called Estate Inventory, each item being posted to that account in such detail as to furnish a complete record. On the other hand, if the assets are of considerable number, it is better to have one account for each type in the inventory. Since real estate, under ordinary circumstances, never comes into the possession of the personal representative but passes direct to the heir or devisee, it should seldom be included in the inventory or entered on the books of the personal representative. However, the federal estate tax and most of the state transfer taxes are levied on real as well as on personal property, and therefore some authorities advocate including such property in the inventory, as recorded in the model entry above. Further, it may be argued that the personal representative is responsible for seeing that the titles to land are properly changed on the public records, and that he should therefore include lands and buildings in the opening entry on his books, writing them off as soon as the title is changed. It probably makes little difference whether or not the real estate is entered in the inventory, provided the personal representative is fully cognizant of his lack of possession. The values used in the inventory should be appraised as of midnight of the day of the death.

The further handling of these asset accounts follows conventional lines. If new assets are discovered subsequent to the opening of the books, their value is debited to Inventory, or is distributed among the appropriate asset accounts, the credit being to Assets not in Inventory. This is a net worth account which will be closed into Estate Corpus. As assets are sold, the proper asset accounts, or Inventory, are credited with the inventory value, Principal Cash is debited, and the gain or loss is credited or debited to Gains on Realization or to Losses on Realization. These accounts are closed into Estate Corpus before the final report to the court is prepared. It should be noted, however, that assets may not be sold below the values as appraised for the inventory unless the court has sanctioned a reappraisal which has resulted in lower valuations.

When the personal representative pays debts incurred by the decedent before his death, he debits Debts of Decedent and credits Principal Cash. Such debts include the expenses of the last illness. The will may waive the statute of limitations and direct him to pay debts on which the statute has run, but otherwise he cannot honor such claims, nor can he pay illegal obligations, like so-called "debts of honor." Each claim should be supported by a voucher or affidavit, and in doubtful cases the personal representative should obtain the advice of the court before making payment. Just prior to making the final report to the court, the account Debts of Decedent should be closed into Estate Corpus.

The expenses of the funeral and of administering the estate are charged to Funeral and Administrative Expenses, the credit being to Principal Cash. The funeral expenses must be reasonable in consideration of the financial status of the decedent, and may be deemed to include suitable mourning apparel for members of the immediate family, the undertaker's charges, fees to a clergyman, and a proper monument. If these costs are more than the court considers reasonable, the excess must be borne by the relatives who incurred them. The administration expenses include the costs of collecting debts due the decedent, court costs, legal fees, interim fees of the personal representative, and any other expenses rightfully incurred in settling the estate. A special account is generally opened for Estate and Other Transfer Taxes.

When income is received, Income Cash is debited and Income is credited. If income items are collected which, like bond interest, have accrued partly before and partly after the death, two entries will

have to be made, one debiting Income Cash and crediting Income, the other debiting Principal Cash and crediting an appropriate asset account, such as Accrued Interest Receivable.

Charges paid in order to acquire income are debited to Expense Income and credited to Income Cash. Expense Income is closed into Income before the final report is made. Interest which accrued on the debts left by the decedent after his death is charged to Expense Income.

Income paid out under the will to one of the beneficiaries is debited to Distribution of Income and credited to Income Cash. Unless otherwise provided in the testament, the specific legatee is always entitled to the net income of that legacy from the time of the death.

ESTATE OF ——————

—————— EXECUTOR

TRIAL BALANCE

Date

Principal Cash	$ 6,000.00	
Income Cash	1,000.00	
Liberty Bonds	10,000.00	
Blank Company Stock	20,000.00	
Legacies Paid	50,000.00	
Debts of Decedent	5,000.00	
Funeral and Administrative Expenses	1,000.00	
Loss on Realization	500.00	
Gain on Realization		$ 1,500.00
Income		3,000.00
Expense Income	1,000.00	
Distribution of Income	1,000.00	
Estate Tax	1,500.00	
Estate Corpus		90,000.00
Assets not in Inventory		2,500.00
	$97,000.00	$97,000.00

FIGURE 100

When legacies are paid in whole or in part, the debit will be to Specific Legacies Distributed, to Demonstrative Legacies Distributed, or to General Legacies Distributed, and the credit will be to Principal Cash. However, if there are a considerable number of legatees, it may be wise to open an account for each. This is particularly true if some are entitled to share in the income as well as receive part of the principal. There may be inheritance taxes which must be paid by the personal representative. These are debited to the Legacies Distributed accounts and credited to Principal Cash, being deducted from the legacies concerned, unless the will provides for their payment out of the estate, when the burden falls on the residuary legatee. In paying legacies, the personal representative should deduct any debts due from the legatee to the estate, including obligations against which the statute of limitations has run. If the will has directed the cancellation of certain debts, such cancellation is treated as a legacy, the credit being to the asset account in which the claim was included in the inventory.

ESTATE OF ————
———— EXECUTOR
SUMMARY OF ACCOUNT
From ———— to ————

First, as to Corpus		
I charge myself with		
Assets per Inventory (per Schedule A)		$.........
Assets not in Inventory (per Schedule B)		....
Gain on Realization (per Schedule C)		....
Total Charges		$.........
I credit myself with		
Loss on Realization (per Schedule D)	$.........	
Funeral and Administration Expenses (per Schedule E)	....	
Debts of Decedent Paid (per Schedule F)	....	
Legacies Paid (per Schedule G)	....	
Estate Taxes Paid (per Schedule H)	....	
Total Credits		....
Balance of Principal Cash	$.........	
Assets not Realized (per Schedule I)	....	$.........
Second, as to Income		
I charge myself with		
Income Realized (per Schedule J)		$.........
I credit myself with		
Expenses Against Income (per Schedule K)	$.........	
Distribution of Income Cash (per Schedule L)	....	
Total Credits		....
Balance of Income Cash on hand		$.........

FIGURE 101

The fees of the personal representative should be divided between Funeral and Administrative Expenses and Expense Income in proportion to the values of the principal, excluding specific legacies and real estate, and the income; and the money will be taken from Principal Cash and Income Cash on the same basis. Similarly, taxes paid may have to be prorated between the income and the corpus accounts.

A trial balance of the accounts should be taken from time to time in order to uncover any errors in balance, and one should always be drawn off before making a report to the court. The Summary Account presented in Figure 101 can be made directly from the trial balance, but the supporting schedules would have to be composed after an analysis of the accounts and groups of accounts. A trial balance might be as in Figure 100.

Before making final report to the court, the personal representative should close his books, still keeping income and corpus separate. Gains, losses, expenses, debts paid, and distributions or legacies are closed into Corpus or into Income, depending on whether the items affect capital or income. The closing entries for the trial balance in Figure 100 would be:

Assets not in Inventory	$ 2,500.00	
Gain on Realization	1,500.00	
Estate Corpus		$4,000.00
To close capital gains into Estate Corpus.		
Estate Corpus	58,000.00	
Estate Tax		1,500.00
Legacies Paid		50,000.00
Debts of Decedent		5,000.00
Funeral and Administrative Expenses		1,000.00
Loss on Realization		500.00
To close capital losses and distributions into Estate Corpus.		
Income	2,000.00	
Expense Income		1,000.00
Distribution of Income		1,000.00
To close expense and distribution of income into Income.		

After these closing entries have been made, the trial balance will be:

ESTATE OF ————
———— EXECUTOR
TRIAL BALANCE
AFTER CLOSING
Date

Principal Cash	$ 6,000.00	
Income Cash	1,000.00	
Liberty Bonds	10,000.00	
Blank Company Stock	20,000.00	
Estate Corpus		$36,000.00
Income		1,000.00
	$37,000.00	$37,000.00

If this trial balance represents the state of affairs at the time of making the final accounting to the court, and if the judge is satisfied that the decedent's personal representative has managed the settlement correctly, the court will issue a "decree of distribution" for whatever remains. To illustrate, let it be supposed that the personal representative is granted a fee of $3,100.00, of which $100.00 is apportioned to income and the balance to capital, what is left of the estate going to the residuary legatee. The entries recording the execution of the court's decree would be:

Estate Corpus	$ 3,000.00	
Income	100.00	
Personal Representative		$ 3,100.00
To set up liability of estate to personal representative according to decree of the court.		
Estate Corpus	33,000.00	
Income	900.00	
Residuary Legatee		33,900.00
To set up liability of the estate to the residuary legatee according to the decree of the court.		
Personal Representative	3,100.00	
Principal Cash		3,000.00
Income Cash		100.00
To record payment of personal representative.		
Residuary Legatee	33,900.00	
Principal Cash		3,000.00
Income Cash		900.00
Liberty Bonds		10,000.00
Blank Company Stock		20,000.00
To record final distribution of the estate to the residuary legatee.		

These entries will close all the accounts on the books of the personal representative. Of course, if there were no will, there would be no legacies, and in that case Distribution accounts would take the place of the various legacy accounts. Should the will create a trust, there will be accounts to show the surrender of assets to the trustee.

The final report to the court may be in a form similar to Figure 101 which, as has been noted, can be prepared from the final trial balance before closing. Each item may be supported by an appropriate schedule. Sometimes the court requires a Statement of Realization, a schedule which shows in properly captioned columns the disposition of each of the items in the inventory, or subsequently discovered. Appropriate column headings would be:

1. Description of the asset
2. Inventory valuation
3. Amount realized on sale of other disposition
4. Loss on realization (However, it should be noted that before assets can be sold at less than their value as originally appraised, a court sanction of a reappraisal is usually necessary)

5. Gain on realization
6. Amount charged to expense
7. Amount distributed
8. Amount used in settlement of debts of decedent
9. Inventory value of assets not disposed of
10. Miscellaneous information, such as the date of disposition, the name of the recipient or purchaser, the reference to the order of the court permitting the disposition

Such a statement enables interested parties to trace through the work of the personal representative, item by item, to assure themselves that all have been properly accounted for.

At every step in the settlement of an estate the administrator or executor is under the supervision of the court. Heirs, legatees, creditors, and disinherited relatives may attempt to push their claims or their desires by legal action, to establish their interpretation of doubtful phrases, or to break the will entirely. In case disputes are at all likely, the personal representative should fortify himself with legal advice on every move. Indeed, it is folly to attempt to settle an estate of any size without the advice of competent counsel, for there are many fine points in probate law that only the specialist knows. Probate courts willingly allow "reasonable" attorney fees as legitimate expenses of administration.

The compensation of the personal representative is fixed by the court or by statute. One state, for example, has a sliding scale which goes from 5 per cent for the first $2,000.00 of receipts and payments passing through his hands, to 2 per cent of all over $50,000.00. If the personal representative is collecting and paying out both principal and income, his commission is calculated on the total of both and then prorated on the basis of the cash handled in each category. In addition to these percentage fees, he may be allowed $25.00 per day for the time he spends in preparing his account for the court.

In addition to financial account books it is advisable for the personal representative to keep a diary in which to record every event in connection with the settlement of the estate. Such a record may prove invaluable in case of disputes, for it should be remembered that occasionally an accounting is called for years after the estate is apparently settled. In truth, the executor or administrator occupies a position of trust: he is acting primarily for the benefit of the creditors and the heirs or legatees of the decedent. Therefore it is incumbent upon him to practise the greatest economy and to exercise the best judgment, that the amount distributed may be a maximum.

Trusts.—When the legal title to property is vested in an individual or group of individuals to be administered for the benefit of one or more persons, the property constitutes a trust fund or a "trust res," and the rights of the legal titleholders constitute a trust. A person in whom such title is vested is a trustee, and he for whose benefit the trust fund is administered is a beneficiary or a "cestui que trust" (plural, "cestuis que trustent"). Occasionally, especially in the Massachusetts business trusts, the trustee is also a beneficiary, but one cannot be a trustee for himself alone.

Trusts are formed for many purposes, among which are the following:

1. To preserve the property of an incompetent or a minor, allowing the beneficiary the income.
2. To place personal property beyond the jurisdiction of states with very high tax rates.
3. To place corporate stock in the hands of a few people who will exercise the voting power and so assure the corporation a continuous development of policy. Such "voting trusts" have also been used to rehabilitate corporations which were in financial difficulties.
4. To manage businesses, the enterprise being organized originally as a trust. In such case the trustees issue "certificates of beneficial interest" or "trust shares" to the beneficiaries.
5. To enable investors to obtain the advantages of diversification either without the trouble of making investments personally, or when investments of individuals have to be in small units.
6. To provide for the upkeep of some institution or organization, such as endowment funds of colleges and research foundations.
7. To attempt the perpetuation of a fortune, as when property is put in trust for the life of one individual, but to become the possession of another person at the death of the first.

While this list is by no means exhaustive, it conveys some idea of the many reasons for establishing trusts. Of late years so many prudent men have been forming trusts to protect their wives and children that some concern is being manifest lest too large a share of the national wealth fall into the hands of trustees. If the tendency becomes too marked, there is danger of throttling enterprise.

Express trusts are those established by the definite injunction of their creators. Testamentary trusts are express trusts created by the execution of wills. A testator will often leave some property in trust, the income to go to some designated relative during her life, and the principal to pass to some other individual at her death. The one who

receives the life income is called a life tenant, and the one to whom the property is ultimately to be given is the remainderman. The life tenant may be the trustee for the remainderman.

The fundamental problem of accounting for trusts is very simple. The chief difficulty arises in definitely distinguishing principal from income. Unless the instrument under which the trust is created permits the expenditure of principal, the capital funds must be kept intact and only the income may be distributed or spent. There is apt to be difficulty in making the distinction between principal and income for the laws are not always harmonious with the best accounting theory. Some of these legal distinctions will be considered in the next section, after the typical entries have been described.

The opening entry for a trust should debit the various asset accounts which best describe the trust res. If the trust is the result of a will the executor does not ordinarily turn the property over to the trustee until there has been time for some income to accumulate, and therefore the assets taken over will probably include some which have come into the fund as income. The credit for the main fund will be to some such account as Principal, while that for distributable or spendable receipts will be to Income. The following entry typifies the manner of opening the trustee's books:

Cash	$ 10,000.00	
Bonds of the City of Blank	10,000.00	
Lot #——, Block #——, City of Blank	50,000.00	
Building on Lot #——, Block #——	100,000.00	
Preferred Stock of Blank Company	60,000.00	
Principal		$220,000.00
Income		10,000.00
To open the Books of the ———— Trust, debiting the trust asset accounts and crediting the Principal and Income accounts.		

Before accepting the trust res, the trustee should check carefully the list of properties turned over to him by the executor or the creator to see that he is receipting for nothing to which he does not receive title and possession or control. Moreover, in the case of a testamentary trust, he should insist that the executor transfer to him all the property that should compose the trust res and any income that has been received or collected by the executor.

If assets are sold by the trustee he credits the appropriate asset accounts and debits Cash. Since any profit or loss on such a sale is a capital item, it should be credited or debited to Principal. If the trust rests entirely on common law rules the trustee may not sell any of the trust assets except those not eligible legally for investments of trustees; but a good deed of trust or will would invest the trustee with both the power and the duty of disposing of investments and reinvesting the funds in such securities as are consistent with the purpose of the trust. No large trust fund is safe unless its investments are subject to constant revision in the light of business developments. In the absence of instructions in the trust-creating instrument, investments made by trustees are limited to objects made eligible by the state statutes.

When income is received by the trust, the trustee should debit Cash or other appropriate asset accounts and credit Income. When income is distributed the credit will ordinarily be to cash and the debit to Income Distributed. Expenses are charged to Expense, and periodically Expense and Income Distributed are closed into Income. Of course in large trusts there will be many accounts for expenses for distributions of income and even for income itself, and these may be kept in subsidiary ledgers or in the general ledger, according to their number and the convenience in bookkeeping. In case such accounts are numerous, they may all be closed into one main Income account or into a Distributable Surplus account. If the trust is one whose income is taxable either to the trust or to the beneficiaries, the records should be such as to show the amounts reportable under the various income tax categories.

Business trusts have capital stock accounts like corporations, and use all the accounts typical of the organizations engaged in the particular industry. Furthermore, some of these trusts have several types of shares and so must have accounts for preferred and common stock and for surplus.

Most trustees are required to make reports to the courts at intervals, and these should be in the form of the charge and discharge statement shown in Figure 101, with separate sections for principal and income. There should be detailed supporting schedules for all the items, and, in particular, a schedule showing the assets at the last report which have since been sold, the gain or loss on the disposition, the new investments made with the funds, and, finally, a summary of the assets on hand.

Principal and Income.—The main difficulty in accounting for ordinary trusts is the distinction between principal and income. The value of a testamentary trust is fixed as at midnight of the date of the death of its creator. Whatever has accrued at that time is principal, but accruals thereafter are income and belong to the beneficiary, even though collected by the executor in his capacity as personal representative. Interest and rents ordinarily accrue; but this is not true of rents in some states; and the interest on savings bank deposits which have to be left until a given day to obtain the interest cannot be treated as an accrual; nor do dividends, property taxes, and business profits accrue. The partner's interest in his firm is determined, in the absence of a contract to the contrary, by closing the books as of midnight of the day of his death. However, the laws of some states provide for the apportionment of stock dividends and of "extra dividends" between principal and income in accordance with the actual time of earning the profits distributed. If land becomes part of the trust res, the proceeds of the sale of crops are income even though the fields were ready for harvesting at the time of the testator's death. Similarly, livestock born subsequently to his death is counted as income. On the other hand, if the testator left unfinished contracts, the profit from their completion is principal. If a trustee or an executor has to spend part of the trust fund in construing or defending the will, securing title to the trust property, or improving purchased land, the money so paid is considered to have come from the principal. These examples suffice to illustrate the fact that the trustee, in taking possession of the fund, must be very careful to distinguish between the principal and the income.

The necessity for this distinction continues all during the life of the trust, in fairness to both the life tenant and remainderman and other interested parties. The tenant has the right to enjoy his full income, and the remainderman is entitled to receive the property unimpaired at the termination of the trust. Assets that formed part of the original fund are kept on the books at the original or inventory value as long as they form part of the trust res, but if they are sold, the gain or loss is credited or debited directly to Principal, or indirectly through Principal Gains and Losses. This rule prohibits valuation on the books, even allowances for depreciation being illegal, unless the instrument creating the trust permits or directs such valuation allowances to be made. If some contingency, such as fire or tornado, destroys part of the trust property, it is a loss of principal, and the trustee may not withhold from a life tenant any part of the income in order to restore the capital value. Under ordinary rules, neither premiums nor discounts on bonds purchased by the creator of the trust should be amortized, but premiums on securities bought by the trustee should be amortized, and a few states allow the amortization of discounts. The brokers' commissions incurred in buying securities are expenditures of principal. The cost of insuring property is a charge against income, but the indemnity collected in case of loss is principal. Similarly, ordinary repairs for the maintenance of the property are paid out of income, but betterments and special assessments for improvements are principal items. If trust funds are invested in corporations with wasting assets, the trustee must apportion dividends received between principal and income. If an asset in the trust fund is encumbered by a mortgage, interest on the mortgage must be charged against income, but payments on the mortgage itself are made out of principal. If leases form part of the value of the trust res, they should be amortized to preserve their worth to the fund. Proceeds of the sale of stock rights and liquidating dividends are parts of principal.

Bewildering as are lists of unconnected distinctions between principal and income, the problem is further complicated by the differences in the law from state to state. However, in the case of life tenancies created by wills, the trustee must turn over to the beneficiary the legal income net of the expenses lawfully chargeable against that income. But the instruments creating trusts, and occasionally even wills, at times provide for such distinctions between income and principal as would be approved by the best accountants, even giving the trustees discretion as to how much of the income may be distributed. In the case of the business trust, the trustees are allowed to make proper deductions from income for depreciation, and are usually given full discretion concerning dividends. Some of the great foundations are so organized that the trustees may withhold income to build up funds, or even divest them of principal if they deem it wise. Thus it is seen that, by framing the instrument properly, a wise creator of a trust may prescribe almost any terms that seem to suit his purpose, and give trustees almost any desired amount of discretion.

Summary.—The powers and duties of executors, administrators, and trustees are strictly regulated by law, but the provisions of wills or of deeds of trust may enlarge those powers substantially.

The personal representative of the deceased should take possession of all the personal property in the estate, preserve it, pay all the debts of the decedent, and distribute what is left according to the terms of the will or the law. It is not ordinarily incumbent on him to make investments or to conduct a business, although he may be forced to do either or both under court order or in accordance with the terms of the will. The ordinary trustee, on the other hand, is expected to make investments, and sometimes to conduct large businesses.

The personal representative or a trustee should keep such accounts as will enable him to separate income from corpus, a very difficult problem in some cases where the distinction is perplexing. In case of doubt competent legal counsel should be obtained. The reports made from time to time to the courts include the charge and discharge statement as to principal and income, detailed supporting schedules and, in the case of estates, the realization statement. The accounting statements, however, are only part of the reports that the courts may require.

The executor or the trustee should remember that he is dealing with the property of beneficiaries who are apt to be inexperienced, and that he is therefore under unusual moral as well as legal obligation to see that these beneficiaries obtain all that the estate or the trust res will yield. Moreover he should, if a trustee, carefully distinguish principal from income in order to protect the interests of both tenant and remainderman. If he makes investments, he should take every precaution to insure their safety.

Although the discussion of the trust in this chapter has featured the one created by testament, the same principles of accounting apply to other trusts, for the executor or administrator is really a trustee in a specialized field. Trust companies are compelled to adopt rather more elaborate systems of accounting than those developed in this chapter, because they handle so many trusts.

QUESTIONS

1. Visit a trust company and find out what types of trust service it offers, what advantages it claims over individual executors and trustees, and how it regulates its charges.
2. Point out all the differences and similarities between the executor and the administrator.
3. Report on the law of descent and of distribution in your state (Consult a compilation of the state statutes.)
4. Report on the estate and inheritance taxes applicable in your state.
5. What are the reasons for and against the continuance by the administrator or executor, of a business owned by the deceased?
6. How does the accounting of the executor differ from that of the administrator?
7. Describe the Charge and Discharge Statement, and show its function.
8. Show how the state law concerning the amortization of premiums and discounts on bonds purchased by a trustee affects the tenant of the trust and the remainderman.
9. Suppose a trustee receives a dividend on the stock in a mining company held by the trust, and it is stated that the check represents equal amounts of net earnings and of return of original capital. Show how he would make the entry on the trust books.
10. Why should the trustee have the right to employ counsel at the expense of the trust?
11. Report on the types of investment open to trustees in your state.

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CHAPTER XXI

THE STATEMENT OF AFFAIRS

Insolvency and Bankruptcy.—When an individual or a business organization is unable to meet its debts as they come due, it is, in the popular sense, "insolvent." This meaning of insolvency is found in the laws of some of the commonwealths, but under federal statute insolvency is the state of an individual or of an organization whose assets when realized—that is, turned into cash—will be insufficient to meet all the obligations. Thus, under the popular usage, an insolvent might pay all creditors in full if given time enough to dispose of his assets, but such a person or organization would not be insolvent under the federal law. On the other hand, a person might be paying his bills as they came due and still be insolvent under the national law because his assets would not be sufficient to pay all liabilities. In this chapter, the first three sections summarize some of the general features of bankruptcy in order that the accounting aspects may be understood.

A bankrupt is one who has been adjudged bankrupt in a federal court, either on his own voluntary petition or upon that of his creditors. With the exception of municipalities, railroad companies, and insurance and banking corporations, anyone who is legally competent to contract and who owes one or more debts may voluntarily become a bankrupt. Wage earners, farmers, municipalities, insurance companies, railways, and incorporated banks may not be adjudged involuntary bankrupts, but any other person or corporation having debts of $1,000.00 or more may be declared bankrupt if he has committed one of the five "acts of bankruptcy." These are:

1. The conveyance, transferring or removing, of part or of all of his property (or permitting his property to be transferred, conveyed, or removed) by a debtor with the purpose of defrauding, or hindering, or delaying one or more of his creditors.
2. The transfer of any part of his property by an insolvent to one or more of his creditors with the purpose of giving these creditors a preference over the other creditors.
3. The allowing of any creditor through legal action to obtain a preference while one is insolvent, and the failure to have such preference vacated or discharged at least five days before the property concerned is sold or finally disposed of.

4. The making of a general assignment for the benefit of one's creditors, or the applying for the appointment of a trustee or of a receiver of one's property while insolvent, or having one's property placed in charge of a receiver or trustee by the laws of any state or territory because of one's insolvency.
5. The admitting in writing of one's inability to pay and of willingness to be adjudged bankrupt.

The petition in involuntary bankruptcy may be filed by one creditor who has claims of at least $500.00, in case there are fewer than twelve creditors, but if there are twelve or more, at least three of them, whose claims in the aggregate amount to $500.00 or more must sign the petition. The petition states the claims of the signers and indicates exactly what act of bankruptcy has been committed by the insolvent.

If there seem grounds for the bankruptcy petition, the court usually appoints a "receiver" to take over and preserve the properties of the debtor until either the creditors have elected a "trustee" or the debtor has been found to be not bankrupt. The debtor is given a hearing for this purpose within twenty days of the filing of the petition, and, if found to be bankrupt, his creditors are summoned to a meeting at which they elect the trustee in bankruptcy. It is the duty of the bankrupt to aid the trustee in locating all of his property, to turn over this property to him, to help him in deciding upon the validity of all claims presented, and, in general, to obey all orders of the court.

Referees, Receivers, and Trustees in Bankruptcy.—Each Federal District Court appoints a Referee in Bankruptcy to assume immediate charge of all bankruptcy proceedings, thus relieving it of the detailed work. This referee sees that the schedules of assets and liabilities are complete and in the proper form, preserves the records of the case, makes up records and furnishes information to interested parties on the state of the case, prepares the lists of dividends to be paid by the trustee, and orders these dividends paid. In order to preserve the honesty and impartiality of referees, they may neither act as attorneys in bankruptcy proceedings, buy either directly or indirectly any property of a bankrupt estate, nor act as referees in cases in which they are interested.

The receiver in bankruptcy is normally a temporary functionary appointed merely to prevent waste or loss in the estate between the filing of the petition in bankruptcy and the election and qualification of the trustee. It may be necessary, therefore, for the receiver only to receive and keep safely the property of the debtor; or he may find it necessary to search out assets, investigate titles, actively collect properties, and make inventories; the court may instruct him to take over and manage a business, as the only way to prevent or to curtail losses. The receiver, however, never takes title to the property in bankruptcy cases, as does the trustee. The functions of "receivers in equity" are considered in Chapter XXII.

A trustee is elected by the creditors to wind up the affairs of the bankrupt. The trustee, therefore, takes title to the properties concerned, prepares inventories, sells the assets, keeps accounts, reports to the referee in bankruptcy, distributes dividends as ordered by the referee, sets apart the exemptions of the bankrupt, and makes the final report to the creditors.

Classes of Creditors.—On making a voluntary petition in bankruptcy, or within ten days after having been adjudged bankrupt, the debtor must file three copies of a set of schedules—one for the referee, one for the trustee, and one for the clerk of the court—which give in detail his assets and liabilities. They also show the exemptions claimed, that is, the property—such as military arms and equipment, family Bible, children's schoolbooks, and real or personal property varying in value from $600.00 to $1,500.00—which the different state laws allow to be kept from creditors. (The federal law recognizes the state statutes as to these exemptions.) These schedules are made on forms which can be purchased from stationers.

Even though their claims are listed in the schedules, creditors are expected to prove them within one year after the adjudication of bankruptcy, but it is always best to prove the claim at once in order to be able to participate in proceedings. Proving a claim consists of filing with the referee in bankruptcy a sworn statement setting forth the date and amount of each item, what collateral if any is held, what payments have been received, the maturity dates, and the balances still due. Other creditors may contest claims at the time they are filed, but if there is no such contest, the referee generally allows the claim, provided it is acknowledged by the bankrupt as valid.

Before they can realize, creditors who hold security must either surrender it or have it sold through foreclosure, or sell it themselves if it is pledged to them. Whatever is left from such sale, after paying the principal and interest of the debt secured, must be turned into the general fund for the benefit of other creditors. If, on the other hand, the price is insufficient to pay the principal and interest of the debt secured, the creditor has a claim on the general assets for the balance due. This residuary claim, however, is met from the general assets in the same ratio as are other unsecured claims. Thus, secured creditors fall into two classes, those who are fully secured and those who are partially secured. Technically it is not necessary for fully secured creditors to prove their claims. Partially secured creditors must prove their claims in order to participate in the distribution of the general assets after they have exhausted the value of the security held. Security for the principal of a debt is also security for the interest.

Out of the free or unpledged assets of the bankrupt's estate certain types of debts are settled in full before any payments are made to the general creditors. These debts are called "preferred" claims, and their order of preference or priority is generally stated thus:

1. Taxes and debts due to the United States, to states, or to minor civil divisions.
2. The costs incurred actually and necessarily by the receiver and by the trustee in preserving the estate after the filing of the petition in bankruptcy.
3. The fees paid by the creditors for filing in involuntary proceedings and the expenses of recovering property which the bankrupt had concealed or transferred.
4. Costs of administration of the estate, including the fees of witnesses and an attorney, and traveling expenses of witnesses.
5. Wages earned within three months before the commencement of proceedings by workmen, servants, salesmen, and clerks, but not exceeding $300.00 to any one person.
6. Whatever debts are given priority by the laws of the state in which the bankrupt was domiciled, such as rents in some states.

As a matter of fact, state and federal taxes often are not paid in priority to anything except classes 5 and 6 and general creditors.

Whenever the trustee has realized enough cash to pay the preferred claims and a 5-per-cent dividend to the general creditors, such a dividend must be declared, to be paid within thirty days of the adjudication that there is sufficient money on hand. The trustee pays this dividend to those creditors certified by the referee within ten days of the issue of his order.

When the estate has claims against one of its creditors, these claims are set off against each other dollar for dollar, and only the balance is collected or paid by the trustee. There are two cases, however, in which such set-off is not allowed: (1) if the claim against the bankrupt is not provable, and (2) when the claim against the bankrupt was purchased after the filing of the petition, or within four months before it was filed, in order to use it as a set-off.

The Statement of Affairs.—When bankruptcy proceedings have been instituted, the creditors are naturally eager to learn what proportion of their claims will be realized. To satisfy their interest, the accountants have devised the Statement of Affairs, an exhibit which displays all of the assets classified as to the existence of encumbrances. Some assets are pledged or mortgaged to creditors who are fully secured, and when such properties are sold there is often something left for the general creditors. Other assets are pledged or mortgaged, but are not worth enough to liquidate the debts which they secure, and the creditors having liens on such assets, which cannot be satisfied out of their security, will have claims on the assets not formally encumbered. Finally, there are those assets which are free from specific pledge or mortgage, and which will be distributed so as to pay in full any creditors who are given preference by law and also to give the general creditors a uniform pro rata of their claims, including the claims remaining to the partially secured creditors after the exhaustion of their security. In order to present a plausible estimate of what the creditors will realize, it is necessary to base the statement on estimates of the values of the several assets in liquidation. On the liability side of the Statement of Affairs appear the claims of the creditors classified as to preference and security.

While the best arrangement of assets and liabilities is that just described and illustrated in Figure 102, some accountants prefer the ordinary balance sheet order. This latter classification is desirable when the statement is prepared by a solvent concern as an exhibit to accompany an application for a line of credit.

Although the accountants have developed a form of statement well adapted to a real need, the statement is not recognized by the courts, and many business men still prefer an ordinary balance sheet accompanied by notes on probable realizations and preferences and encumbrances. However, the Statement of Affairs is sometimes called for in C. P. A. examinations and gives an excellent opportunity for the analysis of accounting relationships. For these reasons a chapter is devoted to a discussion of its construction and to its supplementary exhibit, the Deficiency Account. The illustration is based on the following problem:

> "A receiver having been appointed, he draws up a statement of affairs and a deficiency account from the trial balance and the following information: The Real Estate has increased in value and is appraised at $20,000.00, while it is estimated that the Buildings and Plant are fully worth $25,000.00; but the Machinery and Equipment, being of a special character and unsuitable to any other business, are worth no more than scrap value, viz., $2,500.00. The Materials and Supplies are good and are worth fully the price at which they are carried on the books, but of this material stock of a value of $10,000.00 is pledged as collateral on Warehouse Receipts against $15,000.00 of Accounts Payable on open account. The Finished and Partly Finished Stock, if put into Saleable Condition, will bring

ILLUSTRATIVE PROBLEM

TRIAL BALANCE
X. Y. Z. COMPANY
December 31, 1930

Goodwill	$ 25,000.00	
Real Estate, at Cost	10,000.00	
Building and Plant	37,500.00	
Machinery and Equipment	32,500.00	
Inventories—Material and Supplies	17,500.00	
Finished and Partly Finished Stock	36,000.00	
Accounts Receivable	100,000.00	
Notes Receivable	10,000.00	
Investment	5,000.00	
Cash	5,000.00	
Experimental and Developmental Expenses	22,000.00	
Prepaid Insurance Premiums	3,000.00	
Notes Payable		$100,000.00
Mortgage Payable, Secured by Real Estate		32,500.00
Accounts Payable		61,000.00
Rentals Due		5,000.00
Pay Rolls Accrued		10,000.00
Reserve for Depreciation		15,000.00
Surplus		5,000.00
Capital Stock		75,000.00
	$303,500.00	$303,500.00

$30,000.00, but it is estimated that it will cost $4,000.00 to do this and that in addition $1,000.00 worth of the Materials will have to be used. Of the Accounts Receivable, $60,000.00 are good, $25,000.00 are doubtful, estimated to be 50 per cent collectible, and $15,000.00 are bad. The Notes are good, but the Investment is of no value. Of the Notes Payable, $50,000.00 are secured by $55,000.00 of the good Accounts Receivable. All the Accounts Payable save those partially secured by the Warehouse Receipts are unsecured. The Rentals Due and Pay Rolls Accrued are preferred claims. The actual Capital Stock is $80,000.00, there being $5,000.00 of unpaid subscriptions of which 80 per cent are estimated collectible. Three months' accrued interest at 6 per cent per annum on the Mortgage Payable has not been taken upon the books. Customers' Notes amounting to $25,000.00 have been discounted at the banks on the Company's endorsement, of which $5,000.00 will probably prove uncollectible. The Company is defendant in a damage suit for $1,000.00, with small prospect of winning."

The Book Value columns in the Statement of Affairs present the items as they would appear in the balance sheet of the business if a balance sheet had been prepared after complete adjustment of the books. In the illustrative problem two items have been omitted from the post closing trial balance, the unpaid stock subscriptions and the accrued interest on the mortgage. These are included in the book value columns of the Statement of Affairs because they should appear on

the balance sheet. Their inclusion makes necessary adjustments in the Capital Stock and Surplus accounts to show the actual facts. In the Expected to Realize Column is presented the amount of cash which is anticipated from each asset item after all encumbrances on that particular item have been met. In the Expected to Rank column appear the unsecured claims of creditors against the assets left after the secured creditors have been paid off or have realized all the value of their security, and after the preferred creditors have been paid. Comment on some specific problems may help the student to grasp more fully the structure of the Statement of Affairs.

If more than one asset is pledged or mortgaged to secure the same debt or group of debts, these assets are placed together and added in an inner column in order that the total security may be compared with the total debt secured. This is illustrated in the method of presenting the Real Estate and the Building and Plant, both of which are security for the Mortgage Payable and the accrued interest thereon. The student should notice how, in the inner column, the total of the debt is deducted from the total which is expected to be realized from the two assets mortgaged.

What would appear as one asset on the balance sheet is sometimes presented in more than one place in the Statement of Affairs. Accounts Receivable are an example of this; those that are pledged are shown in an entirely different section of the statement from those not pledged. Similarly, Accounts Payable and Notes Payable have been separated into those having security and those not having security.

When a pledged or mortgaged asset is estimated as insufficient to satisfy the debt against which it is pledged, it is obvious that no sum can be carried into the Expected to Realize column on the asset side. On the liabilities side, however, the value of the asset is subtracted from the amount of the liability secured, the balance of the claim appearing in the Expected to Rank column. The partially secured creditor is thus enabled to obtain the full value of his security, and to share with the unpreferred, unsecured creditors in the distribution of the free assets.

It is customary to analyze Accounts Receivable into the Good, the Doubtful, and the Bad, as shown in the example. Of course this classification may not be made perfectly, just as the valuations of other assets may be over- or underestimated in preparing the statement.

The handling of contingent liabilities is apt to cause confusion. The Notes Receivable Discounted did not appear on the books of the X. Y. Z. Company, but they are included as both assets and liabilities in the Book Value columns, and it is only proper that those interested

THE X. Y. Z. COMPANY
STATEMENT OF AFFAIRS
December 31, 1930

ASSETS

Book Value				Expected to Realize
	Assets Pledged with Fully Secured Creditors			
$10,000.00	Real Estate—Estimated Value		$20,000.00	
37,500.00	Building and Plant—Estimated Value		25,000.00	
	Total—Security for Mortgage Payable		$45,000.00	
	Deduct: Mortgage Payable—Contra	$32,500.00		
	Mortgage Interest Accrued	487.50	32,987.50	$ 12,012.50
55,000.00	Accounts Receivable		$55,000.00	
	Deduct: Notes Payable—Contra		50,000.00	5,000.00
	Assets Pledged with Partially Secured Creditors			
10,000.00	Inventories—Material and Supplies—deducted contra, Security for $15,000.00 Accounts Payable		$10,000.00	
	Free Assets			
5,000.00	Cash			5,000.00
45,000.00	Accounts Receivable			
	Good		$ 5,000.00	5,000.00
	Doubtful		25,000.00	12,500.00
	Bad		15,000.00	
			$45,000.00	
35,000.00	Notes Receivable			
	On Hand		$10,000.00	10,000.00
	Discounted on Endorsement		25,000.00	
			$35,000.00	
7,500.00	Inventories—Material and Supplies			
	To be used in finishing Partly Finished Goods		$ 1,000.00	1,000.00
	To be Sold		6,500.00	6,500.00
			$ 7,500.00	

FIGURE 102

Book Value				Expected to Realize
$ 36,000.00	Finished and Partly Finished Goods			
	Estimated Value when completed		$30,000.00	
	Less: Cost to Complete			
	Materials	$ 1,000.00		
	Other Expense	4,000.00	5,000.00	$ 25,000.00
32,500.00	Machinery and Equipment			2,500.00
5,000.00	Investments			
22,000.00	Experimental and Developmental Expenses			
25,000.00	Goodwill			
3,000.00	Prepaid Insurance			
5,000.00	Unpaid Stock Subscriptions			4,000.00
	Total Free Assets			$ 88,512.50
	Deduct Preferred Liabilities—per contra			15,000.00
	Net Free Assets			$ 73,512.50
	Deficiency to Creditors			33,487.50
$333,500.00				$107,000.00

LIABILITIES

Book Value			Expected to Rank
	Preferred Liabilities		
$ 10,000.00	Pay Rolls Accrued—deducted contra	$10,000.00	
5,000.00	Rentals Due—deducted contra	5,000.00	
		$15,000.00	
	Fully Secured Liabilities		
32,500.00	Mortgage Payable—deducted contra		
487.50	Mortgage Interest Accrued — deducted contra		
50,000.00	Notes Payable—deducted contra		
	Partially Secured Liabilities		
15,000.00	Accounts Payable	$15,000.00	
	Less: Warehouse Receipts for Materials and Supplies worth	10,000.00	$ 5,000.00
	Unsecured Liabilities		
50,000.00	Notes Payable		50,000.00
46,000.00	Accounts Payable		46,000.00
	Contingent Liabilities		
25,000.00	Notes Receivable Discounted on Endorsement		5,000.00
	Estimated Liability on Damage Suit		1,000.00
	Reserves		
15,000.00	Reserve for Depreciation		
	Capital		
80,000.00	Capital Stock		
4,512.50	Surplus		
$333,500.00			$107,000.00

FIGURE 102 (*Continued*)

in the liquidation should understand the amount and nature of these contingent liabilities. A very careful estimate should be made of the sum of contingencies which is apt to become actual, this amount being presented in the Expected to Rank column. If there is some contingent liability which has never appeared on the books in any form, such as the damage suit, it should be included in the Statement of Affairs in the Expected to Rank column. Suppose that this suit had been lost and was on appeal to a higher court; the books should show a reserve, and that reserve should appear in the Expected to Rank column. But if the suit should be won, the reserve would be returned to Surplus.

When inventories of partly finished goods can be sold to better advantage if completed, it is necessary to estimate just what work will be required for finishing them and what it will cost. The additional materials necessary are shown as if they were to be realized at their market price, and this market value plus other probable expenditures for completion, is deducted from the expected realizable value of the completed products to show in the Expected to Realize column, the net realization that is anticipated.

Intangible items, such as Goodwill and Experimental and Developmental Expenses, seldom have a realizable value although there are occasions on which they may be sold. This means that the trustee should investigate carefully any possible values which might be obtained from them.

Such deferred assets as Prepaid Insurance have a cash surrender value in some cases. However, since it is important to protect the assets of the bankrupt estate against the insurable risks, the insurance policies are seldom surrendered until the goods covered have been disposed of, which usually means that little or nothing is obtained from the cash surrender values. Other deferred assets should be analyzed similarly to determine whether they have a cash value immediately realizable, or whether they should be held. It should be noted that if an individual bankrupt has life insurance payable to his estate, or to a beneficiary whom he may change at his option, the cash surrender value of the policy is an asset of the estate.

When a corporation in bankruptcy falls into the hands of a receiver or of a trustee, this functionary should attempt at once to determine whether there are any unpaid stock subscriptions that are legally collectible, and, if so, he should endeavor to realize them.

The preferred liabilities are shown separately on the liability side of the statement, and their sum is subtracted from the total of the free assets as shown in the Expected to Realize column, to give the net free assets available to the unsecured, unpreferred creditors. It

cannot be assumed that an accrued payroll consists entirely of preferred liabilities. The wages owed must be analyzed to see that they have been earned within three months, that nothing in excess of $300.00 due to any individual is listed as preferred, and that salaries of officers, directors, and owners are not included. Thus, an accrued payroll may appear partly among the preferred liabilities and partly among the unsecured liabilities.

Reserves are treated according to their nature. A valuation reserve on a definite asset or group of assets is shown as a deduction on the asset side, thus:

Book Value				Expected to Realize
	Assets Pledged with Fully Secured Creditors			
$10,000.00	Real Estate—Estimated Value		$20,000.00	
30,000.00	Building and Plant			
	Cost	$37,500.00		
	Reserve for Depreciation	7,500.00		
	Book Value	$30,000.00		
	Estimated Value		25,000.00	
			$45,000.00	
	Less: Mortgage Payable	$32,500.00		
	Accrued Interest	487.50	32,987.50	$12,012.50

This method is impossible, however, if the valuation reserves are in lump sums which cannot be applied to groups of assets, and in such cases they must be shown on the liability side like the Reserve for Depreciation in Figure 102. Reserves that are really liabilities, such as those for accrued taxes, are classed with the liabilities, but surplus reserves belong in the capital section. In the Contingent Liability section are classed reserves for contingent liabilities, such as one for adverse judgments.

A deficit on the books of the corporation should not be added among the assets but should be deducted from the capital stock on the liability side, thus:

Book Value			Expected to Rank
	Capital		
$50,000.00	Preferred Stock		
45,000.00	Common Stock		
	Issued	$75,000.00	
	Less: Deficit	30,000.00	
	Net book value	$45,000.00	

In this example it is assumed that the preferred stock is preferred as to assets.

In the illustration in Figure 102, there will be $73,512.50 to be divided among the unsecured, unpreferred creditors in proportion to their claims which total $107,000.00, and each creditor will therefore receive 68.703 per cent of his claim, or approximately 68.703 cents on the dollar. This expectation of the creditors is contingent for its realization on there being no unexpected losses in realization, and no expenses. There are, however, bound to be expenses and there may be unexpected losses. On the other hand, there may be gains, or losses smaller than anticipated. Thus it should be understood thoroughly that the Statement of Affairs is merely an estimate of the probable result of the liquidation of the business, with no allowance for expenses.

THE X. Y. Z. COMPANY
DEFICIENCY ACCOUNT
December 31, 1930

Estimated Loss on:		Estimated Gain on Real Estate		$ 10,000.00
Building and Plant	$ 12,500.00	Loss to Stockholders		
Accounts Receivable	27,500.00	Capital Stock	$80,000.00	
Notes Receivable Discounted	5,000.00	Surplus	5,000.00	
Finished and Partly Finished Goods	11,000.00	Reserve for Depreciation	15,000.00	100,000.00
Machinery and Equipment	30,000.00			
Investment	5,000.00	Loss to Unsecured Creditors		33,487.50
Experimental and Developmental Expenses	22,000.00			
Goodwill	25,000.00			
Prepaid Insurance	3,000.00			
Accrued Interest on Mortgage not on books	487.50			
Unpaid Stock Subscriptions	1,000.00			
Estimated Liability on Damage Suit	1,000.00			
	$143,487.50			$143,487.50

FIGURE 103

The Deficiency Account.—It is usually wise to prepare a Deficiency Account in connection with the Statement of Affairs. Such an account attempts to show just what losses are expected and who will bear them. In Figure 103 the Reserve for Depreciation is shown as a loss to stockholders, but it might just as well appear on the debit side as a deduction from the sum of the estimated losses on realization. The loss to the unsecured creditors as shown by the Deficiency Account should always agree with the deficiency to unsecured creditors as it appears on the Statement of Affairs. The preparation of the Deficiency Account is sometimes facilitated by including in the asset side of the Statement of Affairs a column headed "Shrinkage," in which all the net losses are tabulated. The Deficiency Account, like the Statement of Affairs, is an estimate of what will happen rather than a presentation of realized facts.

The Statement of Affairs for Credit Purposes.—Although the Statement of Affairs was developed for cases of bankruptcy, it is sometimes prepared for presentation with an application for credit, and in such a case there will be an excess of net free assets over unsecured liabilities. The order of presentation normally follows that of the balance sheet.

Summary.—Bankruptcy and insolvency are terms to which the law gives definite technical meanings, which differ somewhat from popular usage. A person or organization can become bankrupt only by adjudication of the court after voluntary petition or petition by creditors.

If there is danger of dissipation of the debtor's estate the judge appoints a receiver to conserve the property until the final hearing and until the creditors can meet and elect one or two or three trustees to liquidate. Both receivers and trustees act under the immediate supervision of the referee in bankruptcy.

The trustees liquidate the estate by realizing the assets as rapidly as possible without too great loss, and by distributing the cash received in dividends to the general creditors after sufficient has been set aside to take care of the preferred creditors.

Creditors fall into four classes according to whether they are fully secured, partly secured, preferred, or entirely unsecured.

In order to determine how the business will terminate, the trustee may prepare a Statement of Affairs which shows the status of each asset and liability as estimated, and from which can be determined the percentage which unsecured creditors will receive on their claims. The form of statement presented in the text is an invention of accountants and is admirably adapted to this purpose. However, it is probably never required by the courts, the trustee's report sometimes taking the form of a balance sheet with comments.

A slightly modified form of the Statement of Affairs is sometimes used in seeking credit.

Bankruptcies are handled in federal courts under the law of 1898 as amended, but most of the states have statutes governing insolvency.

QUESTIONS

1. Why does the federal Constitution permit Congress to establish a uniform bankruptcy law?
2. Report on the exemptions allowed to insolvent debtors under the laws of your state. Why should such exemptions be allowed?
3. State the acts of bankruptcy and discuss the significance of each.

4. Distinguish between the functions of the referee in bankruptcy, the receiver, and the trustee.
5. What is done in bankruptcy cases to prevent connivance between the bankrupt and some of his creditors?
6. Why should certain types of claims be preferred for payment out of the free assets? Is this preference just?
7. Refer to Figure 102 and calculate what per cent of their claims the partially secured creditors expect to receive.
8. Distinguish between the terms "net assets," as generally used in connection with a business, and "net free assets," as used in the Statement of Affairs.
9. Why is the Statement of Affairs so seldom used for credit purposes?
10. In preparing a Statement of Affairs, how would you handle a premium or a discount on bonds payable?

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CHAPTER XXII

RECEIVERS' ACCOUNTS

Receivers in Equity.—Receiverships in equity may be created by either state or federal courts for any of many purposes, such as the rehabilitation of businesses which appear to be insolvent, the dissolution of insolvent businesses, the administration of the estates of decedents over which there is legal controversy, and the preservation of property which is being wasted by the owners or directors to the detriment of the stockholders or the creditors. Receiverships in equity are largely a development of the common law, although some state statutes provide for them. In case of an insolvent concern or of one threatened with insolvency, the receiver is expected to operate the business until it has paid off the creditors, at which time it is returned to the owners. This ideal aim is sometimes accomplished, but often the receiver is able only to mitigate the hardships of immediate dissolution. Frequently a receivership results in complete reorganization which is sometimes accomplished largely by eliminating the interests of the stockholders; but there have been instances in which the receiver has actually put the business in such shape that no individuals suffered loss.

Accounting for Receivership.—There is no set form of accounting for receivership. If the receiver is appointed merely to wind up a business or an estate, his accounts may be kept on the old books, and if he is to attempt rehabilitation, he may use the old books, or open new ones. The accounts on the new books should parallel closely in name and function those in the old ones. The receiver is instructed by the judge as to just what he is to take over and what he is to do, and such instructions determine to a large extent the type of accounts that he will need. In order to illustrate the entries of a receivership, suppose that when the Statement of Affairs of the X. Y. Z. Company was presented to the court, some of the creditors argued, along with the company's attorneys, that immediate liquidation would be disastrous, and asked that a receiver be appointed to operate the business temporarily in an effort either to salvage it or to minimize their losses. The court thereupon appointed William Brown as a receiver in equity, ordering him to assume all the tangible assets of the business and to operate it for the period of one year, reporting to the court from time to time, and paying the old debts as rapidly as possible.

Brown decided to open a new set of books, and the opening entry would be:

Cash	$ 5,000.00	
Accounts Receivable—Old	100,000.00	
Notes Receivable—Old	35,000.00	
Materials and Supplies	17,500.00	
Finished and Partly Finished Stock	36,000.00	
Investment	5,000.00	
Unpaid Stock Subscriptions	5,000.00	
Prepaid Insurance	3,000.00	
Real Estate	10,000.00	
Buildings and Plant	37,500.00	
Machinery and Equipment	32,500.00	
X. Y. Z. Company in Receivership		$246,500.00
Notes Receivable Discounted—Old		25,000.00
Reserve for Depreciation		15,000.00

To set up assets taken over from the X. Y. Z. Company in Receivership as ordered by the United States District Court for the —— District of ———— at values according to the books of the company in receivership.

On the books of the receiver the account "—— in Receivership" is the capital account, like Estate Corpus on those of the executor. Sometimes the receiver credits the liability accounts of the company in receivership, and debits ——in Receivership with their total. Some accountants advocate taking the assets on the receiver's books at their appraised values rather than at book values, holding that this enables the receiver to make a better showing. The creditors, however, are not so much interested in the showing made by the receiver as in what they get on their claims. Frequently the receiver does not place the intangible, fixed, and deferred assets on his books, but he is not deprived of their use. When the receiver enters the fixed assets in his books he should take also the valuation accounts. The court can give him possession of the assets which is valid against any other claimant, except mortgagees and pledgees. If a trustee in bankruptcy opens new books, he would naturally take up the assets at values as appraised for the inventory.

On the books of the X. Y. Z. Company four entries will have to be made when possession of the assets is surrendered to the receiver, three for adjustments and one for the actual transaction:

Surplus	$ 487.50	
Accrued Mortgage Interest		$ 487.50

To place on books Accrued Mortgage Interest.

Notes Receivable	25,000.00	
Notes Receivable Discounted		25,000.00

To enter upon the books the contingent liability on discounted notes endorsed by this company.

Subscriptions to Capital Stock	$ 5,000.00	
Capital Stock		$ 5,000.00

To adjust the Capital Stock account to its correct value in consideration of the unpaid subscriptions previously not entered on the books.

William Brown, Receiver	246,500.00	
Notes Receivable Discounted	25,000.00	
Reserve for Depreciation	15,000.00	
Cash		5,000.00
Accounts Receivable		100,000.00
Notes Receivable		35,000.00
Inventory—Materials and Supplies		17,500.00
Finished and Partly Finished Stock		36,000.00
Investment		5,000.00
Subscriptions to Capital Stock		5,000.00
Prepaid Insurance		3,000.00
Real Estate		10,000.00
Buildings and Plant		37,500.00
Machinery and Equipment		32,500.00

To record transfer of tangible assets to William Brown, Receiver, in accordance with the order of the United States District Court for the —— District of ————.

If the receiver had placed on his books the company's liabilities, another entry would be necessary, debiting the liability accounts and crediting the receiver. Some accountants would make no further entry on the books of the company in receivership until the assets were returned by the receiver, at which time they would adjust values to those returned.

The receiver often finds that he cannot operate without more cash, and in such a situation he can apply to the court for permission to issue "receiver's certificates," which are obligations superior to any other debts in their claim on the assets—even on mortgaged assets. Suppose that in the above case William Brown receives permission to borrow $50,000.00 on such certificates. If he sells these obligations at par his entry will be:

Cash	$ 50,000.00	
Receiver's Certificates		$ 50,000.00

To record issue of 50 certificates of a par value of $1,000.00 each at par, as authorized by the order of the United States Court for the —— District of ————.

In operating over the stipulated one-year period, Brown has to buy materials, employ workmen, and meet expenses. On the assumption that he is using the voucher system, his transactions will be summarized thus:

Materials and Supplies	$ 20,000.00	
Labor	20,000.00	
Manufacturing Expense	10,000.00	

Taxes	$ 5,000.00	
Interest on Receiver's Certificates	2,500.00	
Selling Expenses	13,500.00	
Receiver's Vouchers Payable		$ 71,000.00
To record on Voucher Register Sundry Operating Transactions.		

Sales during the year aggregated $150,000.00, which would be entered thus:

Accounts Receivable—New	$150,000.00	
Sales		$150,000.00

It is necessary to keep the accounts receivable and payable which the receiver opens separate from those existing prior to his appointment, in order to be able to analyze the results of his operations, which is the reason for designating the accounts receivable as "new" in this entry.

Suppose that Brown collects $110,000.00 on his own sales and $80,000.00 of the old accounts receivable, and finds that $16,000.00 of these old accounts are utterly worthless. A summary of the many entries would be:

Cash	$190,000.00	
Loss on Realization	16,000.00	
Accounts Receivable—Old		$ 96,000.00
Accounts Receivable—New		110,000.00

The account Loss on Realization is opened in order to separate from the operating losses the losses on the assets received from the company in receivership.

Of the notes discounted by the X. Y. Z. Company prior to the receivership, $19,000.00 were paid when due, but $6,000.00 were dishonored and had to be paid by Brown, with no hope of recovery. The entries would be:

Notes Receivable Discounted	$ 25,000.00	
Notes Receivable		$25,000.00
Loss on Realization	6,000.00	
Receiver's Vouchers Payable		6,000.00
Receiver's Vouchers Payable	6,000.00	
Cash		6,000.00

The notes on hand were all collected as they came due.

Cash	$ 10,000.00	
Notes Receivable		$ 10,000.00

The Investment was sold for $1,000.00.

Cash	$ 1,000.00	
Loss on Realization	4,000.00	
Investment		$ 5,000.00
To record sale of Investment at a loss.		

The Receiver's Certificates were paid as they came due.

Receiver's Certificates	$ 50,000.00	
Receiver's Vouchers Payable		$ 50,000.00
Receiver's Vouchers Payable	50,000.00	
Cash		50,000.00

Of the Stock Subscriptions, $3,000.00 were collected and the balance were found to be worthless.

Cash	$ 3,000.00	
Loss on Realization	2,000.00	
Unpaid Stock Subscriptions		$ 5,000.00
To record collection of unpaid subscriptions.		

Brown paid $70,000.00 of the expense vouchers incurred by him.

Receiver's Vouchers Payable	$ 70,000.00	
Cash		$ 70,000.00

He paid the interest on the mortgage as it fell due April 1 and October 1. His entry would be:

X. Y. Z. Co. in Receivership—Accrued Int. Paid	$ 487.50	
X. Y. Z. Co. in Receivership—Current Int. Paid	1,462.50	
Receiver's Vouchers Payable		$ 1,950.00
Receiver's Vouchers Payable	1,950.00	
Cash		1,950.00

Whenever the receiver pays a debt for the company in receivership not arising from his own operations, it should be entered on the company's books, thus:

Current Mortgage Interest	$ 1,462.50	
Accrued Mortgage Interest	487.50	
William Brown, Receiver		$ 1,950.00

Brown paid some of the liabilities on the books of the X. Y. Z. Company, his entries being:

X. Y. Z. Co. in Receivership—Accounts Payable Paid	$ 40,000.00	
X. Y. Z. Co. in Receivership—Notes Payable Paid	30,000.00	
X. Y. Z. Co. in Receivership—Rentals Due Paid	5,000.00	
X. Y. Z. Co. in Receivership—Payrolls Accrued Paid	10,000.00	
Receiver's Vouchers Payable		$ 85,000.00
Receiver's Vouchers Payable	85,000.00	
Cash		85,000.00

As in the preceding transaction, a complementary entry will have to be made on the books of the corporation.

Accounts Payable	$ 40,000.00	
Notes Payable	30,000.00	
Rentals Due	5,000.00	
Payrolls Accrued	10,000.00	
William Brown, Receiver		$ 85,000.00

On December 31, 1931, after the close of the first year of the receivership, the trial balance of the receiver's books would appear as in Figure 104, and that of the corporation as in Figure 105. The closing entries on the receiver's books involve, first, a regular closing of the operating accounts into Profit and Loss and, second, a closing of the net profit and of all the secondary accounts with the company in receivership into the main account, —— Company in Receivership. These entries on the receivership books of William Brown will be made on the assumption that one-half of the prepaid insurance has been exhausted, that there has been $3,000.00 depreciation on the Machinery and Equipment and $1,000.00 depreciation on the Buildings and Plant, that the Inventory of Materials and Supplies is $7,500.00, and that of Finished and Partly Finished Stock is $20,000.00. The closing entries would be:

X. Y. Z. COMPANY IN RECEIVERSHIP
WILLIAM BROWN, RECEIVER
TRIAL BALANCE
December 31, 1931

Cash	$ 46,050.00	
Accounts Receivable—Old	4,000.00	
Accounts Receivable—New	40,000.00	
Materials and Supplies	37,500.00	
Finished and Partly Finished Stock	36,000.00	
Prepaid Insurance	3,000.00	
Real Estate	10,000.00	
Buildings and Plant	37,500.00	
Machinery and Equipment	32,500.00	
Labor	20,000.00	
Manufacturing Expense	10,000.00	
Taxes	5,000.00	
Interest on Receiver's Certificates	2,500.00	
Selling Expenses	13,500.00	
Loss on Realization	28,000.00	
X. Y. Z. Co. in Receivership, Accrued Interest Paid	487.50	
X. Y. Z. Co. in Receivership, Current Interest Paid	1,462.50	
X. Y. Z. Co. in Receivership, Accounts Payable Paid	40,000.00	
X. Y. Z. Co. in Receivership, Notes Payable Paid	30,000.00	
X. Y. Z. Co. in Receivership, Rentals Due Paid	5,000.00	
X. Y. Z. Co. in Receivership, Payrolls Accrued Paid	10,000.00	
Sales		$150,000.00
Reserve for Depreciation		15,000.00
Receiver's Vouchers Payable		1,000.00
X. Y. Z. Company in Receivership		246,500.00
	$412,500.00	$412,500.00

FIGURE 104

THE X. Y. Z. COMPANY
TRIAL BALANCE
December 31, 1931

Goodwill	$ 25,000.00	
Experimental and Developmental Expenses	22,000.00	
William Brown, Receiver	159,550.00	
Current Mortgage Interest	1,462.50	
Notes Payable		$ 70,000.00
Mortgage Payable		32,500.00
Accounts Payable		21,000.00
Surplus		4,512.50
Capital Stock		80,000.00
	$208,012.50	$208,012.50

FIGURE 105

Depreciation	$ 4,000.00	
Reserve for Depreciation		$ 4,000.00
To record depreciation for one year.		
Manufacturing Account	70,500.00	
Materials and Supplies		30,000.00
Prepaid Insurance		1,500.00
Labor		20,000.00
Manufacturing Expense		10,000.00
Taxes		5,000.00
Depreciation		4,000.00
To close the manufacturing expense accounts into Manufacturing Account.		
Finished and Partly Finished Stock	70,500.00	
Manufacturing Account		70,500.00
To close Manufacturing Account into Finished and Partly Finished Stock.		
Sales	150,000.00	
Profit and Loss		150,000.00
To close Sales into Profit and Loss.		
Profit and Loss	86,500.00	
Finished and Partly Finished Stock		86,500.00
To close cost of sales into Profit and Loss.		

Profit and Loss	$ 16,000.00	
Interest on Receiver's Certificates		$ 2,500.00
Selling Expenses		13,500.00
To close selling and general expenses.		
Profit and Loss	47,500.00	
X. Y. Z. Company in Receivership		47,500.00
To close operating profit into X. Y. Z. Company in Receivership.		
X. Y. Z. Company in Receivership	28,000.00	
Loss on Realization		28,000.00
To close Loss on Realization into the X. Y. Z. Company in Receivership.		
X. Y. Z. Company in Receivership	86,950.00	
X. Y. Z. Co. in Receivership, Accrued Int. Paid		487.50
X. Y. Z. Co. in Receivership, Current Int. Paid		1,462.50
X. Y. Z. Co. in Receivership, Accts. Payable Paid		40,000.00
X. Y. Z. Co. in Receivership, Notes Payable Paid		30,000.00
X. Y. Z. Co. in Receivership, Rentals Due Paid		5,000.00
X. Y. Z. Co. in Receivership, Payrolls Accrued Paid		10,000.00
To close into the X. Y. Z. Company in Receivership the accounts with liabilities paid for this Company.		

When these closing entries have been made on the receiver's books, the trial balance will be as in Figure 106:

X. Y. Z. COMPANY IN RECEIVERSHIP
WILLIAM BROWN, RECEIVER
TRIAL BALANCE, DECEMBER 31, 1931
After Closing

Cash	$ 46,050.00	
Accounts Receivable—Old	4,000.00	
Accounts Receivable—New	40,000.00	
Materials and Supplies	7,500.00	
Finished and Partly Finished Stock	20,000.00	
Prepaid Insurance	1,500.00	
Real Estate	10,000.00	
Buildings and Plant	37,500.00	
Machinery and Equipment	32,500.00	
Reserve for Depreciation		$ 19,000.00
Receiver's Vouchers Payable		1,000.00
X. Y. Z. Company in Receivership		179,050.00
	$199,050.00	$199,050.00

FIGURE 106

On the books of the X. Y. Z. Company the results of the receiver's operations should be shown by such entries as:

William Brown, Receiver	$ 47,500.00	
Profit and Loss		$ 47,500.00
Loss on Realization	28,000.00	
William Brown, Receiver		28,000.00

These entries will bring into harmony the accounts William Brown, Receiver, on the company's books, and X. Y. Z. Company in Receivership on the receiver's books, and at this point the company's books may be closed by the following entries:

Current Mortgage Interest	$ 487.50	
Accrued Mortgage Interest		$ 487.50
To record interest on Mortgage accrued to December 31, 1931, but not paid.		
Profit and Loss	47,500.00	
Surplus		47,500.00
Surplus	29,950.00	
Loss on Realization		28,000.00
Current Mortgage Interest		1,950.00

This will leave the company's balance in the form of Figure 107. Neither of these trial balances tells the whole story, but they can be combined easily, only one account in each having to be eliminated. The combined trial balances will furnish all the data needed for a complete balance sheet of the enterprise.

THE X. Y. Z. COMPANY
TRIAL BALANCE
December 31, 1931
After Closing

Goodwill	$ 25,000.00	
Experimental and Developmental Expenses	22,000.00	
William Brown, Receiver	179,050.00	
Notes Payable		$ 70,000.00
Mortgage Payable		32,500.00
Accounts Payable		21,000.00
Accrued Mortgage Interest		487.50
Surplus		22,062.50
Capital Stock		80,000.00
	$226,050.00	$226,050.00

FIGURE 107

The Receiver's Report to the Court.—There is no uniformity in the reports made to the courts by the receivers. A very good and often-used form, however, is the charge and discharge statement, similar to that in Figure 108. Such a statement is usually accompanied by a Receiver's Cash Account,[1] a Receiver's Profit and Loss Statement, and elaborate supporting schedules. These schedules are omitted from the illustration, since the student can easily prepare them from the journal entries in this chapter. Among the items not listed in Figure 108 with which the receiver may charge himself are assets discovered subsequent to his appointment, gains on the realization of assets, and, in cases where he has not taken over the fixed assets, amounts realized from the sale of fixed assets. Items not included in the illustration with which the receiver may credit himself are decreases in the assets as stated at the beginning of the receivership, expenditures on the fixed assets, decrease in the amount of his liability, and expenses of the receivership. The content of such a report will necessarily vary with the nature of the property, the commission of the receiver, and the success of his operations.

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[1] See pp. 417, 420.

WILLIAM BROWN
RECEIVER FOR THE X. Y. Z. COMPANY
CHARGE AND DISCHARGE STATEMENT
January 1 to December 31, 1931

I Charge myself with	
1. Assets taken over by order of the Court, per Schedule A	$246,500.00
2. Proceeds of Sale of Receiver's Certificates	50,000.00
3. Increase of Receiver's Liabilities	1,000.00
4. Net Profit on Operations, per Schedule B	47,500.00
Total	$345,000.00
I Credit myself with	
1. Liabilities of the X. Y. Z. Company paid, per Schedule C	$ 85,000.00
2. Losses on Realization of Assets, per Schedule D	28,000.00
3. Receiver's Certificates repaid	50,000.00
4. Interest Charges on Mortgage paid	1,950.00
5. Assets on hand December 31, 1931	[a]180,050.00
Total	$345,000.00

[a] This $180,050.00 minus the $1,000.00 Receiver's Liability on vouchers is $179,050.00, the balance due the X. Y. Z. Company from the receiver.

FIGURE 108

The Termination of the Receivership.—When a receivership is successful, the court orders the receiver to return the assets to the control of the stockholders or other owners, but if it fails to accomplish rehabilitation, the court will order the sale of all the assets, and the liquidation of the liabilities according to their legal status. The accounting problems raised in either of these cases are not at all difficult of solution. By way of illustration it will be assumed that the court orders William Brown to pay himself a fee of $10,000.00 for his services as receiver, and then to turn over the assets and liabilities to the X. Y. Z. Company. The entries on the receiver's books will be:

X. Y. Z. Company in Receivership	$ 10,000.00	
Cash		$ 10,000.00
To record payment of fee to receiver as ordered by the Federal Court of the —— District of ————.		
X. Y. Z. Company in Receivership	169,050.00	
Receiver's Vouchers Payable	1,000.00	
Reserve for Depreciation	19,000.00	
Cash		36,050.00
Accounts Receivable—Old		4,000.00
Accounts Receivable—New		40,000.00
Materials and Supplies		7,500.00
Finished and Partly Finished Stock		20,000.00
Prepaid Insurance		1,500.00
Real Estate		10,000.00
Buildings and Plant		37,500.00
Machinery and Equipment		32,500.00

This entry completely closes out the receiver's books. On the company's books the entries would be:

Surplus	$ 10,000.00	
William Brown, Receiver		$ 10,000.00
To record the allowance of a fee of $10,000.00 to William Brown, Receiver, by order of the court.		
Cash	36,050.00	
Accounts Receivable	44,000.00	
Inventory—Materials and Supplies	7,500.00	
Finished and Partly Finished Stock	20,000.00	
Prepaid Insurance	1,500.00	
Real Estate	10,000.00	
Buildings and Plant	37,500.00	
Machinery and Equipment	32,500.00	
Receiver's Vouchers Payable		1,000.00
Reserve for Depreciation		19,000.00
William Brown, Receiver		169,050.00
To record return of assets by the receiver in accordance with the order of the court.		

Substitutes for Receivership.—Receivers appointed by the courts are so seldom successful in their attempts to rehabilitate businesses, and liquidation through them or trustees has proved so expensive and at times so wasteful, that other methods of liquidation have been devised.

A "composition" with creditors is an agreement whereby the creditors agree to accept from the debtor in full satisfaction a certain per cent of his obligations to them. Such an agreement is binding only on those creditors who sign it, it being possible for any others to join in a petition for involuntary bankruptcy. The advantages in a composition are the savings in court costs and in the fees of the receiver and trustee as well as those of attorneys; in addition, it frequently entails less delay in settlement than do bankruptcy proceedings.

Assignment for the benefit of creditors involves turning over the debtor's property to a creditor or a committee of creditors for the benefit of all the creditors. This is an act of bankruptcy; but if the creditors assent to the assignment and do not force bankruptcy proceedings, a larger proportion of the estate may be saved for distribution. Assignments are frequently made to committees of the creditors, a form of liquidation particularly favored by many who have had wide experience with insolvencies.

THE X. Y. Z. COMPANY
TRIAL BALANCE
December 31, 1931
After Termination of Receivership

Cash	$ 36,050.00	
Accounts Receivable	44,000.00	
Inventory—Materials and Supplies	7,500.00	
Finished and Partly Finished Stock	20,000.00	
Prepaid Insurance	1,500.00	
Real Estate	10,000.00	
Buildings and Plant	37,500.00	
Machinery and Equipment	32,500.00	
Goodwill	25,000.00	
Experimental and Developmental Expense	22,000.00	
Notes Payable		$ 70,000.00
Accounts Payable		21,000.00
Receiver's Vouchers Payable		1,000.00
Accrued Mortgage Interest		487.50
Mortgage Payable		32,500.00
Reserve for Depreciation		19,000.00
Surplus		12,062.50
Capital Stock[a]		80,000.00
	$236,050.00	$236,050.00

[a] Doubtless the directors will declare forfeit the unpaid stock subscriptions and thus provide for a proper adjustment, such as debiting Forfeited Stock and crediting Capital Surplus $2,000.00.

FIGURE 109

The accounting for the assignment is much like that for the receiver, the assignee's accounts closely paralleling those of the receiver or the trustee appointed to liquidate.

Summary.—The attempt to save a business which has become insolvent or nearly so often results in the appointment of a receiver in equity to conduct it temporarily and to try to pay off the debts and return it to its owners in shape to continue operation. Such receivers are assigned their duties by the courts.

Ordinarily the receiver takes over a part or all of the assets of the debtor organization, setting up for a net worth account —— Company in Receivership, but he does not usually take on his books its liabilities.

The receiver may be empowered by the court to issue certificates or notes which take precedence over even first mortgage bonds in their right to be paid out of the realized assets. Such certificates are justified only in case operation promises to lessen or eliminate losses.

The receiver keeps operating accounts like those for an ordinary business, giving them names identical with or closely similar to those on the books of the company in receivership.

When the receiver pays obligations for the debtor he debits accounts, "—— Company in Receivership, ——Paid," each of which represents a particular type of debt paid. Keeping these accounts separate enables him to make definite reports of proceedings to the court.

When the receiver disposes of assets of the debtor concern he keeps the gains and losses realized in special accounts as distinct from the operating accounts. This is necessary because in reporting to the court he is expected to be able to show each of the assets realized and the profit or loss on the sale.

In closing his books the receiver closes into —— Company in Receivership not only the operating profit or loss and the gains or losses on realization, but also the accounts for liabilities paid on account of the debtor in accordance with the order of the court.

The court usually requires from the receiver a report at the end of the first month and every two months thereafter. The important points of such a report are often in the form of a charge and discharge statement supported by detailed schedules which usually include a profit and loss statement and a balance sheet or a comparative balance sheet.

There is, however, no uniformity in the forms of reports or in the methods of accounting by receivers. An additional statement, the Realization and Liquidation Statement, will be considered in the next chapter.

Dissolution under the supervision of the courts has proved to be so expensive and even wasteful, that business men resort whenever possible to liquidation or receiverships through committees of creditors. While a receivership may result in the complete rehabilitation of the business, its usual effect is either liquidation or a reorganization in which the old stockholders suffer considerable losses.

QUESTIONS

1. Contrast the powers and duties of the receiver in equity with those of the receiver in bankruptcy.
2. What are the comparative advantages and disadvantages of the

receiver taking on his books the liabilities of the business in receivership?

3. Why should the receiver keep his operating profits separate from the profits and losses on realization?
4. Frame a rule to govern the entries to be made on the books of a corporation in receivership when the accounting follows the method set forth in this chapter.
5. Suppose that, when the receiver took possession of the property, no entries were made on the books of a corporation in receivership; would any entries be necessary on those books when his reports to the court show some assets realized and some liabilities liquidated? If so, what entries? Would any entries be necessary when he returned the residuary assets to the control of the corporation?
6. Follow in the local newspapers the account of some receivership, and make a report of the case.
7. Contrast the charge and discharge statements made by executors with those made by receivers in equity.
8. Why is the receiver in equity ordinarily instructed to take over title to the current and deferred assets but not to the fixed assets? How can he conduct the business without title to the fixed assets?
9. Why are receiver's certificates necessary in the rehabilitation of a business? Would they be necessary if the business were to be liquidated at once? Why are they given such high preference as to payment?
10. Suppose that 18 out of 21 creditors sign a composition agreement, but the other 3 sign a petition in bankruptcy. Why should the three be able to have their way as against the eighteen?

REFERENCES FOR SUPPLEMENTARY READING

See those for Chapter XXI.

CHAPTER XXIII

THE STATEMENT OF REALIZATION AND LIQUIDATION

Nature of the Statement of Realization and Liquidation.—In order to present in one statement a complete record of the work of the receiver, accountants have devised the Statement of Realization and Liquidation. Since this statement seldom makes its appearance in court, the form has not been standardized, but it is frequently called for in accounting examinations because its construction involves wide knowledge of accounting technic, in addition to ability to reason. The statement, moreover, has great potentiality for real usefulness in connection with receiverships and liquidation. The older form of this statement is exemplified in Figure 110. Such an exhibit should be accompanied by a Realization and Liquidation Profit and Loss Account either on the form in Figure 111 or a simple account, and by a Trustee's Cash Account, after the pattern of Figure 112. These statements may be presented to the court whenever a report is called for, since progress is shown through them.

If the receiver or trustee is instructed to take over all of the assets for realization, they are all put down under the head "Assets to be Realized." If, however, only some are to be disposed of, the receiver enters them under a corresponding title "Assets Taken Over." These are alternative captions for the first paragraph. Ordinarily the assets are valued as on the books of the firm in receivership. Of course such a valuation makes the loss as shown in the statement greater than if they were entered at lower appraisals; but the appraisal is at best a close guess at their worth, while the book figure should be actual cost less depreciation. Anyone interested can compare what the receiver has realized with the appraisals shown on the statement of affairs, and it is therefore better, on the whole, to show in the Realization and Liquidation Statement exactly how the management has progressed on the basis of book values. Yet there is nothing incorrect in taking the assets into the books of the receiver at appraised values.

In the paragraph headed "Assets Acquired" are listed the assets discovered by the receiver subsequent to his assuming charge, and the assets that accrue to the business as the result of his operations. There is sometimes doubt as to how to identify such assets. For example, in the illustration in the last chapter, William Brown had purchased

THE X.Y.Z. COMPANY

WILLIAM BROWN, RECEIVER

REALIZATION AND LIQUIDATION ACCOUNT

January 1 to December 31, 1931

Assets to be Realized			
Accounts Receivable		$100,000.00	
Notes Receivable—On hand	$10,000.00		
Discounted	25,000.00	35,000.00	
Inventory—Materials and Supplies		17,500.00	
Finished and Partly Finished Stock		36,000.00	
Investment		5,000.00	
Subscriptions to Capital Stock		5,000.00	
Prepaid Insurance		3,000.00	
Real Estate		10,000.00	
Building and Plant	$37,500.00		
Machinery and Equipment	32,500.00		
	$70,000.00		
Less: Reserve for Depreciation	15,000.00	55,000.00	
Goodwill		25,000.00	
Experimental and Developmental Expense		22,000.00	$313,500.00
Assets Acquired			
Receiver's Accounts Receivable		$150,000.00	
Materials and Supplies		20,000.00	170,000.00
Supplementary Debits			
Labor		$ 20,000.00	
Manufacturing Expenses		10,000.00	
Taxes		5,000.00	
Mortgage Interest		1,950.00	
Interest on Receiver's Certificates		2,500.00	
Selling Expense		13,500.00	
Receiver's Fees		10,000.00	62,950.00
Liabilities Liquidated			
Receiver's Certificates		$ 50,000.00	
Receiver's Vouchers Payable		70,000.00	
Rentals Due		5,000.00	

Liabilities to be Liquidated				
Rentals Due			$ 5,000.00	
Payrolls Accrued			10,000.00	
Notes Payable			100,000.00	
Accounts Payable			61,000.00	
Mortgage Payable			32,500.00	
Accrued Mortgage Interest			487.50	
Notes Receivable Discounted			25,000.00	$233,987.50
Liabilities Assumed				
Receiver's Certificates			$ 50,000.00	
Receiver's Vouchers Payable			71,000.00	
Current Mortgage Interest			1,462.59	
Accrued Mortgage Interest			487.50	122,950.00
Supplementary Credits				
Sales				150,000.00
Assets Realized				
Accounts Receivable			$ 80,000.00	
Receiver's Accounts Receivable			110,000.00	
Notes Receivable—On hand		$10,000.00		
Discounted	$25,000.00			
Less: Paid by Receiver	6,000.00			
		19,000.00	29,000.00	
Investment			1,000.00	
Subscriptions to Capital Stock			3,000.00	223,000.00
Assets Not Realized				
Accounts Receivable			$ 4,000.00	
Receiver's Accounts Receivable			40,000.00	
Inventory—Materials and Supplies			7,500.00	
Finished and Partly Finished Stock			20,000.00	
Prepaid Insurance			1,500.00	

Payrolls Accrued		10,000.00	
Notes Payable		30,000.00	
Accounts Payable		40,000.00	
Accrued Mortgage Interest		487.50	
Current Mortgage Interest		1,462.50	
Notes Receivable Discounted		25,000.00	231,950.00
Liabilities Not Liquidated			
Notes Payable		$ 70,000.00	
Accounts Payable		21,000.00	
Receiver's Vouchers Payable		1,000.00	
Accrued Interest Payable		487.50	
Mortgage Payable		32,500.00	124,987.50
Profit on Realization			7,550.00
			$910,937.50
Balances Down—Assets			
Accounts Receivable		$ 4,000.00	
Receiver's Accounts Receivable		40,000.00	
Inventory—Materials and Supplies		7,500.00	
Finished and Partly Finished Stock		20,000.00	
Prepaid Insurance		1,500.00	
Building and Plant—Cost	$37,500.00		
Machinery and Equipment—Cost	32,500.00		
	$70,000.00		
Less: Reserve for Depreciation	19,000.00	51,000.00	
Real Estate		10,000.00	
Goodwill		25,000.00	
Experimental and Developmental Expense		22,000.00	$181,000.00

Building and Plant—Cost	$37,500.00		
Machinery and Equipment—Cost	32,500.00		
	$70,000.00		
Less: Reserve for Depreciation	19,000.00	51,000.00	
Real Estate		10,000.00	
Goodwill		25,000.00	
Experimental and Developmental Expense		22,000.00	181,000.00
			$910,937.50
Balances Down—Liabilities			
Notes Payable		$ 70,000.00	
Accounts Payable		21,000.00	
Receiver's Vouchers Payable		1,000.00	
Accrued Interest Payable		487.50	
Mortgage Payable		32,500.00	
			$124,987.50

FIGURE 110

additional materials and supplies for $20,000.00. This purchase is shown as an additional asset acquired; it might have been placed under the heading of Supplementary Debits. If uncollected interest or rents accrue they also should be included in the Assets Acquired.

"Supplementary Debits" is a heading to cover the expenses of the receivership, or the payment of the expenses that accrue, like interest and rent. It should not include the losses on realization of assets, for these are shown in a different way, as will appear later.

Under the caption "Liabilities to be Liquidated" are tabulated all the known liabilities of the debtor at the time of the appointment of the receiver. Notes receivable discounted with the endorsement of the debtor may be listed among these liabilities if balanced by inclusion among the assets. On the other hand, these discounted notes may be omitted from both the Assets to be Realized and the Liabilities to be Liquidated sections, but in that case there should be shown under the heading Liabilities Assumed those notes which, not having been paid by the persons primarily bound, have had to be met from the funds of the debtor. These Liabilities to be Liquidated are a part of the Statement of Realization and Liquidation, regardless of whether the receiver formally took them into his books.

New liabilities which the receiver assumes for the debtor, together with those that accrue against the debtor during the receivership and those not on the books at the time of the creation of the receivership but subsequently discovered or proved are classed under the head of Liabilities Assumed. In the illustrative case, it will be remembered, the receiver actually incurred expenses of $71,000.00, and he drew vouchers for the payment of interest on the mortgage, the amount for the year of the receivership being $1,462.50. Interest for the last quarter of the year had accrued but had not been paid at the time of the report, December 31, 1931. As was remarked in the preceding paragraph, liabilities assumed on account of notes receivable discounted but not paid by the makers may be included in this section of the statement, provided the contingent liabilities are not listed as Liabilities to be Liquidated.

Whatever earnings accrue during the period of the receivership or are earned by operation appear as Supplementary Credits. Such items as Sales of Merchandise in the course of trade would be included, but not merchandise sold in a lump if the business were being liquidated without any attempt at operation. There might also appear in this section interest and rents accrued, dividends on securities owned, and commissions earned.

The section on Assets Realized lists the assets disposed of at the prices actually received. For example, the old Accounts Receivable were collected to the extent of $80,000.00, but the statement does not show directly that $16,000.00 of these accounts were abandoned as bad. Similarly, the entire investment was disposed of for $1,000.00, although it had appeared on the books at $5,000.00.

THE X. Y. Z. COMPANY
WILLIAM BROWN, RECEIVER
REALIZATION AND LIQUIDATION PROFIT AND LOSS ACCOUNT
January 1 to December 31, 1931

Cost of Sales			Net Sales	$150,000.00
Materials and Supplies, Jan. 1		$ 17,500.00		
Finished and Partly Finished Goods, Jan. 1		36,000.00		
Purchases		20,000.00		
Labor		20,000 00		
Manufacturing Expense		10,000.00		
Taxes		5,000.00		
Depreciation		4,000.00		
Insurance		1,500.00		
		$114,000.00		
Deduct Inventory Dec. 31				
Materials and Supplies	$ 7,500.00			
Finished and Partly Finished Stock	20,000.00	27,500.00		
Cost of Sales		$ 86,500.00		
Gross Profit on Sales—down		63,500.00		
		$150,000.00		$150,000.00
Deduct Business Expenses			Gross Profit on Sales	$ 63,500.00
Interest on Receiver's Certificates		$ 2,500.00		
Selling Expenses		13,500.00		
Mortgage Interest		1,950.00		
		$ 17,950.00		
Net Profit on Operations—down		45,550.00		
		$ 63,500.00		$ 63,500.00
Loss on Realization			Net Profit on Operations	$ 45,550.00
Loss on Stock Subscriptions		$ 2,000.00		
Loss on Accounts Receivable		16,000.00		
Loss on Investment		4,000.00		
Loss on Notes Discounted		6,000.00		
Receiver's Fees		10,000.00		
		$ 38,000.00		
Net Profit for Year		7,550.00		
		$ 45,550.00		$ 45,550.00

FIGURE 111

Under the caption Assets not Realized are included all of the remaining assets at book values. Those assets which have depreciated during the receivership are shown at the depreciated values. Deferred assets, like the Prepaid Insurance, are included at the adjusted values after allowance for expiration. Current inventories of the materials, supplies, goods in process, and finished stock are exhibited. In short, this section of the statement could be used as the asset side of a balance sheet of the business.

The heading Liabilities Liquidated includes whatever liabilities have been paid, provided they were listed as Liabilities to be Liquidated or as Liabilities Assumed. Since, however, the Receiver's Fees were never set up as a liability, they are not included in this section.

Liabilities not Liquidated should include all the unpaid liabilities of the debtor or of the receiver as such. This section should contain all the material needed to make the liabilities section of the balance sheet of the debtor.

Profit or Loss in the Statement of Realization and Liquidation.—It is difficult without study to perceive just why the balancing figure in the Statement of Realization and Liquidation represents the profit or loss on the entire operation of the receiver; so the following paragraphs offer an explanation of this point. The sum of Liabilities not Liquidated and Liabilities Liquidated should always equal the sum of Liabilities to be Liquidated and Liabilities Assumed. In case there has been a composition with creditors, the total conceded by them should appear as an item under the caption Liabilities Liquidated. Thus the balance is maintained.

If the inventories at the beginning of the receivership and the subsequent purchases were included under Supplementary Debits and those at the close were listed as Supplementary Credits, the difference between these two sections would be the profit or loss on operation, disregarding depreciation and expiration of deferred assets. In the illustration these items are as follows:

Total of Supplementary Credits	$150,000.00	
From Assets not Realized		
Inventory—Materials and Supplies	7,500.00	
Finished and Partly Finished Stock	20,000.00	$177,500.00
Total of Supplementary Debits	$ 62,950.00	
From Assets to be Realized		
Inventory—Materials and Supplies	17,500.00	
Finished and Partly Finished Stock	36,000.00	
From Assets Acquired		
Materials and Supplies	20,000.00	136,450.00
Profit on Operations, disregarding depreciation and expiration of deferred items		$ 41,050.00

The sum of the Assets to be Realized and the Assets Acquired, omitting the inventories and the purchases, will exceed the sum of the Assets Realized and the Assets not Realized, omitting the closing

inventories, by an amount which equals depreciation, the expiration of deferred items, and the losses on realization. These items are:

Assets to be Realized		$313,500.00	
Assets Acquired		170,000.00	
		$483,500.00	
Deduct:			
Inventory — Materials and Supplies	$17,500.00		
Finished and Partly Finished Stock	36,000.00		
Materials and Supplies	20,000.00	73,500.00	$410,000.00
Assets Realized		$223,000.00	
Assets not Realized		181,000.00	
		$404,000.00	
Deduct:			
Inventory—Materials and Supplies	$ 7,500.00		
Finished and Partly Finished Stock	20,000.00	27,500.00	376,500.00
Depreciation, Expiration of Deferred Items, and Losses on Realization			$ 33,500.00

Thus the profit on operations as found, $41,050.00, less the losses on realization, $33,500.00, leaves $7,550.00, which is the net increase of the surplus as found in Chapter XXII, and the net profit for the year as developed in Figures 110 and 111.

If the approximate profit on operations as computed in the preceding paragraph is adjusted, it will agree with the result in Figure 111, thus:

Profit on Operations, disregarding depreciation and expiration of deferred charges		$41,050.00
Add: Receiver's Fee		10,000.00
		$51,050.00
Deduct:		
Depreciation on Building and Plant	$1,000.00	
Depreciation on Machinery and Equipment	3,000.00	
Expiration of Insurance	1,500.00	5,500.00
Profit on Operations per Realization Profit and Loss Account		$45,550.00

Similarly, the approximate loss on realization can be reconciled with that in Figure 111, thus:

Loss on Realization, disregarding depreciation and expiration of deferred items		$33,500.00
Add: Receiver's Fees		10,000.00
		$43,500.00
Deduct:		
Depreciation on Building and Plant	$1,000.00	
Depreciation on Machinery and Equipment	3,000.00	
Expiration of Insurance	1,500.00	5,500.00
Loss on Realization per Realization Profit and Loss Account		$38,000.00

This rather involved discussion shows why the difference between the two sides of the Statement of Realization and Liquidation is the profit or loss on the operation and realization combined. The liability sections on the two sides balance. The sum of the Assets to be Realized, the Assets Acquired, and the Supplementary Debits sections differs from the sum of the Assets Realized, the Assets not Realized, and the Supplementary Credits sections by the net profit or loss from operation and from realization.

The Realization and Liquidation Statement should be accompanied by a summary Receiver's Cash Account, such as that in Figure 112.

THE X. Y. Z. COMPANY
WILLIAM BROWN, RECEIVER
RECEIVER'S CASH ACCOUNT
January 1 to December 31, 1931

Balance, January 1	$ 5,000.00	Receiver's Certificates Paid	$ 50,000.00
Receiver's Certificates Sold	50,000.00	Discounted Notes Redeemed	6,000.00
Accounts Receivable Collected	80,000.00	Receiver's Vouchers Paid	70,000.00
Receiver's Accounts Receivable Collected	110,000.00	Mortgage Interest Paid	1,950.00
Notes Receivable Collected	10,000.00	Accounts Payable Paid	40,000.00
Investment Sold	1,000.00	Notes Payable Paid	30,000.00
Stock Subscriptions Collected	3,000.00	Rentals Due Paid	5,000.00
		Payrolls Accrued Paid	10,000.00
		Receiver's Fees Paid	10,000.00
		Balance	36,050.00
	$259,000.00		$259,000.00

FIGURE 112

The Realization and Liquidation Account, New Form.—The old form of the Realization and Liquidation Statement is so cumbersome and so hard to understand that there has been a movement to improve it. The new form of statement is illustrated in Figures 111 and 113, the first being the Profit and Loss Section, and the second, the Asset and Liability Section. The differences between the old and the new form are readily seen.

There is no item for Cash in the old form because "cash cannot be realized," realization being conversion into cash. The new form, however, shows cash on hand to commence with, cash received, cash disbursed, and the balance at the end of the period.

Similarly, the new form traces each asset, showing what was on hand, what was acquired, how it was disposed of, and what remains, the inner column showing the losses on realization. Each liability is likewise traced through.

The new form ends with a complete balance sheet, as contrasted with mere lists of assets and liabilities which completed the old one.

The new form involves no difficult reasoning to understand the balance of profit or loss, since the Profit and Loss Section checks item by item with the Asset and Liability Section as far as losses on realization are concerned.

Each of the four sections of the new form shows a balance of the column totals, the grand totals of the two asset sections balance, and the grand totals of the two liability sections balance. The Surplus as shown in Net Worth balances with the previous Surplus plus the net profit, or minus the loss, from the Profit and Loss Section. Thus the accountant making such a statement can check his work at many convenient stages.

For these reasons the new form of the Statement of Realization and Liquidation is, for practical use, highly preferable to the old form.

Summary.—The old form of Realization and Liquidation Statement had to be supplemented by a statement of profit and loss and by a receiver's cash account.

The new form of statement consists of two parts, the first dealing with profit and loss, and the second with assets and liabilities. This form is more practical and should have wide usefulness in connection with receivership.

QUESTIONS

1. Describe two ways of handling purchases of materials or of merchandise on the old form of Statement of Realization and Liquidation.
2. Can you describe two ways of handling discounts on receiver's sales on the old form of this statement? How would you handle such discounts on the new form?
3. Show how the accrual of interest earned would be handled on the Statement of Realization and Liquidation.
4. Compare the methods of handling notes receivable discounted on the two Statements of Realization and Liquidation presented in the text.

THE X. Y. Z. COMPANY
WILLIAM BROWN, RECEIVER
REALIZATION AND LIQUIDATION STATEMENT
January 1 to December 31, 1931

		Assets Taken Over	Assets Acquired	Total
Cash		$ 5,000.00	$254,000.00	$259,000.00
Accounts Receivable		100,000.00		100,000.00
Receiver's Accounts Receivable			150,000.00	150,000.00
Notes Receivable		10,000.00		10,000.00
Inventory—Materials and Supplies		17,500.00	20,000.00	37,500.00
Finished and Partly Finished Stock		36,000.00		
Cost of Manufacture			70,500.00	
Total				106,500.00
Investment		5,000.00		5,000.00
Stock Subscriptions		5,000.00		5,000.00
Prepaid Insurance		3,000.00		3,000.00
Real Estate		10,000.00		10,000.00
Building and Plant	$37,500.00			
Machinery and Equipment	32,500.00			
	$70,000.00			
Less: Reserve for Depreciation	15,000.00			
		55,000.00		55,000.00
Goodwill		25,000.00		25,000.00
Experimental and Developmental Expense		22,000.00		22,000.00
		$293,500.00	$494,500.00	$788,000.00

		Assets Disposed of	Assets on Hand	Total
Cash		$222,950.00	$ 36,050.00	$259,000.00
Accounts Receivable, Collected		80,000.00		
Abandoned, Bad		16,000.00	4,000.00	100,000.00
Receiver's Accounts Receivable		110,000.00	40,000.00	150,000.00
Notes Receivable		10,000.00		10,000.00
Inventory—Materials and Supplies				
Used in Operation		30,000.00		
On hand			7,500.00	37,500.00
Finished and Partly Finished Stock		86,500.00	20,000.00	106,500.00
Investment—Price Realized		1,000.00		
Loss		4,000.00		5,000.00
Stock Subscriptions—Collected		3,000.00		
Uncollectible		2,000.00		5,000.00
Prepaid Insurance—Expired		1,500.00		
In Force			1,500.00	3,000.00
Real Estate			10,000.00	10,000.00
Building and Plant	$37,500.00			
Machinery and Equipment	32,500.00			
	$70,000.00			
Less Reserve for Depreciation	15,000.00			
Net Value	$55,000.00			
Depreciation		4,000.00		
Residual Value			51,000.00	55,000.00
Goodwill			25,000.00	25,000.00
Experimental and Developmental Expenses			22,000.00	22,000.00
		$570,950.00	$217,050.00	$788,000.00

	Liabilities Liquidated	Liabilities Not Liquidated	Total
Notes Payable	$ 30,000.00	$ 70,000.00	$100,000.00
Accounts Payable	40,000.00	21,000.00	61,000.00
Rentals Due	5,000.00		5,000.00
Payrolls Accrued	10,000.00		10,000.00
Accrued Mortgage Interest	1,950.00	487.50	2,437.50
Notes Receivable Discounted	6,000.00		6,000.00
Receiver's Purchases and Expenses	70,000.00	1,000.00	71,000.00
Receiver's Certificates	50,000.00		50,000.00
Mortgage Payable		32,500.00	32,500.00
	$212,950.00	$124,987.50	$337,937.50

	Liabilities Taken Over	Liabilities Incurred	Liabilities Total
Notes Payable	$100,000.00		$100,000.00
Accounts Payable	61,000.00		61,000.00
Rentals Due	5,000.00		5,000.00
Payrolls Accrued	10,000.00		10,000.00
Accrued Mortgage Interest	487.50	$ 1,950.00	2,437.50
Notes Receivable Discounted		6,000.00	6,000.00
Receiver's Purchases and Expenses		71,000.00	71,000.00
Receiver's Certificates		50,000.00	50,000.00
Mortgage Payable	32,500.00		32,500.00
	$208,987.50	$128,950.00	$337,937.50

BALANCE SHEET

Assets—Per Assets on Hand Column

Cash		$ 36,050.00
Accounts Receivable		4,000.00
Receiver's Accounts Receivable		40,000.00
Inventory—Materials and Supplies		7,500.00
Finished and Partly Finished Stock		20,000.00
Prepaid Insurance		1,500.00
Real Estate		10,000.00
Plant and Building	$ 37,500.00	
Machinery and Equipment	32,500.00	
	$ 70,000.00	
Less: Reserve for Depreciation	19,000.00	
		51,000.00
Goodwill		25,000.00
Experimental and Developmental Expense		22,000.00
		$217,050.00

Liabilities—Per Liabilities not Liquidated Column

Notes Payable		$ 70,000.00
Accounts Payable		21,000.00
Accrued Mortgage Interest		487.50
Receiver's Purchases and Expenses		1,000.00
Mortgage Payable		32,500.00
		$124,987.50
Net Worth		
Capital Stock	$ 80,000.00	
Surplus	12,062.50	92,062.50
		$217,050.00

FIGURE 113

Are these differences connected with the form of the statement, or could either method be used with either form?

5. Referring to the old form of this statement, discuss the handling of the inventories. What difference do you notice in the new form of statement? Is this difference a matter of the form of statement?
6. Although accountants have been preparing Realization and Liquidation Statements for years, such statements have gained little acceptance in the courts. What would be your explanation of their failure to impress the courts? Discuss the strong and weak points of this statement as a form of report for the receiver or trustee.
7. Is the Realization and Liquidation Statement equally available to the liquidating trustee and the receiver in equity? Which do you think could use it to better advantage?
8. Why do the examples of Realization and Liquidation Statements separate the old accounts receivable from the new? The old accounts payable from the new?
9. How is the Realization and Liquidation Statement related to the Charge and Discharge Statement? Should both be used in making a report to the court? Could you make the Charge and Discharge Statement from the Realization and Liquidation Statement?
10. Suppose a company is voluntarily liquidating itself. How could the Statement of Realization and Liquidation be used?

REFERENCES FOR SUPPLEMENTARY READING

See list at end of Chapter XXI.

CHAPTER XXIV

CONSOLIDATION AND COMBINATION

Types of Combination.—It has frequently been found desirable to effect combinations of business units in order to secure economy of operation. This economy may arise out of such factors as the specialization of plants, the ability of the combination to close some of the less profitable plants, the ability of the combination to furnish exceptional engineering, advertising, selling, and financial talent, the opportunity to save "cross freights," the savings possible from quantity buying, the steadying of production for a larger market, the control of sources of raw materials, the elimination of one or more profits between the producer of the raw material and the final consumer, and the reduction of administrative overhead. However, such combination may achieve no actual economies, but through its mere size may gain advantage in dealing with financiers, employees, or customers. If partial or complete monopoly results and prices can be fixed at the point of maximum profit, the monopolistic combination may prove extremely lucrative. For these and other reasons, the movement toward combinations has been gaining strength for the last sixty years in the United States.

Since colonial times, the American people have been afraid of monopolies and have attempted to prevent their formation. However, it is now generally conceded that public utilities should enjoy monopolies under regulation, but in other fields such early forms of combination as the pool and the monopolistic trust have been outlawed. There are, however, four forms of combination which are legal, provided they do not create unreasonable restraint of trade, substantially restrict competition, or raise monopolies. These forms are the lease, the holding company, the consolidation, and the merger. The lease is a contract whereby one business unit secures the use of the property of another business unit for a specified period of time in consideration of periodic payments of rent. The holding company is a corporation which owns stock in other corporations. Consolidation is the union of one or more existing business units with a newly formed corporation, the old units being completely dissolved and the new corporation taking over their assets and assuming their liabilities. The merger is a union of two or more existing business organizations into one of themselves, all the organizations being dissolved except the one which continues and which takes over the assets and assumes the liabilities of the others. The laws of many states expressly empower corporations to own stock in other corporations—in other words, to become holding companies. Likewise, the statutes of most commonwealths provide for merger or consolidation. The only essential difference between the merger and the consolidation is that the union in the merger is into one of the merged corporations, while the union in the consolidation is into an entirely new corporation created for the purpose.

Accounting for the Merger.—The merging of corporations is accomplished by a contract between them. After the contract is passed upon favorably by the board of directors of each of the merging organizations, it is then submitted to the vote of the stockholders of each corporation at the regular or at special meetings. If the contract is approved by them, "Articles of Merger" are prepared and submitted to the Secretary of State for his examination. If he finds them according to law, he issues a "Certificate of Merger" to the surviving corporation after he has collected the legal fees.

It is apparent that the accounting for a merger will follow the same principles as that for the purchase and sale of businesses, the surviving corporation being treated as the purchaser, and the dissolving corporations as the vendors. The steps will therefore be as follows:

A. On the books of the surviving corporation—
  1. Make any necessary adjustments, such as:
    a. For the authorization of additional stock with which to make the purchase.
    b. For the correction of any accounts current with the merging corporations, in accordance with reconciliations of such accounts.
    c. For any contracted adjustments in valuations.
  2. Record subscription to capital stock, if payment for the merged properties is to be made in stock, or if stock is to be sold for cash with which to pay for them.
  3. Record receipt of assets and assumption of liabilities for each of the merged corporations, crediting the net value of the assets to an account for each of the corporations to be dissolved. (If there has been no detailed appraisal of the assets taken over, and if such an appraisal is to be made, it is sometimes advisable to debit some such general account as Plant and Sundry Assets with the estimated value of the assets. When the detailed appraisal is received, Plant and Sundry Assets is credited and the particular asset accounts are debited with the correct amounts, differences, if any, being absorbed in Goodwill or Capital Surplus.)
  4. Close any accounts current among the merged corporations, which are unsettled; usually they can be closed into each other.
  5. Record payment in cash or in stock, debiting the accounts of the vendor corporations and crediting cash or subscriptions to stock.

COMPANY XYZ
BALANCE SHEET

Assets		Liabilities and Net Worth	
Real Estate	$ 50,000.00	Accounts Payable	$ 50,000.00
Building, Plant, and Equipment	60,000.00	Loans	50,000.00
Goodwill	25,000.00	Capital Stock	100,000.00
Cash	15,000.00	Surplus	100,000.00
Inventories	80,000.00		
Accounts Receivable	70,000.00		
	$300,000.00		$300,000.00

COMPANY PQ
BALANCE SHEET

Assets		Liabilities and Net Worth	
Real Estate	$ 25,000.00	Accounts Payable	$ 50,000.00
Building, Plant, and Equipment	40,000.00	Capital Stock	100,000.00
Cash	5,000.00	Surplus	25,000.00
Inventories	20,000.00		
Accounts Receivable	85,000.00		
	$175,000.00		$175,000.00

FIGURE 114

B. On the books of each corporation or partnership or sole proprietorship to be dissolved—
  1. Make any necessary adjustments, such as:
    a. For valuation of assets. (It may be wise to close depreciation reserves into the proper asset accounts. Goodwill may be set up.)
    b. For bringing accounts current in harmony with the results of reconciliation.
    c. For closing the books, if that has not already been done.
  2. Record the transfer of assets and liabilities to the surviving corporation.
  3. Record receipt of payment from the surviving corporation.

4. Record final dissolution, debiting capital stock and surplus accounts, and crediting cash or the account for the stock of the surviving corporation. (If the dissolving business is a partnership or a sole proprietorship, the debit will be to the capital accounts of the proprietors.)

An illustration will serve to clarify these principles. Assume that Company XYZ is to absorb Company PQ, paying $150,000.00 in stock for the net assets of Company PQ. The balance sheets of these companies are given in Figure 114. The Accounts Receivable of Company XYZ include $15,000.00 due from Company PQ, and shown among the Accounts Payable of Company PQ. Since the book value of this company's net worth is only $125,000.00 according to its balance sheet, it is evident that Company XYZ is buying what it considers $25,000.00 goodwill, which should be set up on Company PQ's books. The entries for the merger are as follows:

A. Entries on the books of Company XYZ, the surviving corporation:

Unissued Capital Stock	$150,000.00	
Capital Stock		$150,000.00
To record authorization of 1,500 shares of stock, par value $100.00 per share.		
Subscriptions to Capital Stock	150,000.00	
Unissued Capital Stock		150,000.00
To record subscriptions to 1,500 shares of stock at par by Company PQ as per the merger agreement.		
Real Estate	25,000.00	
Building, Plant, and Equipment	40,000.00	
Cash	5,000.00	
Inventories	20,000.00	
Accounts Receivable	85,000.00	
Goodwill	25,000.00	
Accounts Payable		50,000.00
Company PQ, Vendor		150,000.00
To record receipt of assets and assumption of liabilities of Company PQ according to merger agreement.		
Accounts Payable	15,000.00	
Accounts Receivable		15,000.00
To record elimination of account receivable on books of Company XYZ against Company PQ shown as account payable by Company PQ.		
Company PQ, Vendor	150,000.00	
Subscriptions to Capital Stock		150,000.00
To record settlement with Company PQ by issue of stock as payment in full for net assets, as agreed in merger agreement.		

B. Entries on books of Company PQ, the corporation absorbed:

Goodwill	$ 25,000.00	
Surplus		$ 25,000.00
To set up goodwill in accordance with merger agreement.		
Accounts Payable	50,000.00	
Company XYZ, Vendee	150,000.00	
Real Estate		25,000.00
Building, Plant, and Equipment		40,000.00
Cash		5,000.00
Inventories		20,000.00
Accounts Receivable		85,000.00
Goodwill		25,000.00
To record transfer of assets and liabilities to Company XYZ in accordance with merger agreement.		
Stock of Company XYZ	150,000.00	
Company XYZ, Vendee		150,000.00
To record receipt of stock of Company XYZ as payment in full for net assets in accordance with the merger agreement.		
Capital Stock	100,000.00	
Surplus	50,000.00	
Stock of Company XYZ		150,000.00
To record dissolution of Company PQ by the distribution of its entire assets among the stockholders.		

When the merger has been completed the balance sheet of Company XYZ will appear as in Figure 115. This balance sheet may be made from the books of Company XYZ, provided they have been closed previous to recording the merger. If, however, it is desired to project the balance sheet of the merger before making the actual entries on the books, a work sheet may be used similar to that shown in Figure 118.

COMPANY XYZ

BALANCE SHEET

After Merger

Assets		Liabilities and Net Worth	
Real Estate	$ 75,000.00	Accounts Payable	$ 85,000.00
Building, Plant, and Equipment	100,000.00	Loans	50,000.00
Goodwill	50,000.00	Capital Stock	250,000.00
Cash	20,000.00	Surplus	100,000.00
Inventories	100,000.00		
Accounts Receivable	140,000.00		
	$485,000.00		$485,000.00

FIGURE 115

Sometimes one corporation buys all of the stock of another and then decides to merge the subsidiary into the holding company; but even in this situation, a formal merger agreement is necessary. The holding company will have on its books an investment account showing its ownership of stock in the subsidiary. When the holding company actually takes title to the property of the subsidiary it is absorbing, an entry must be made debiting the proper accounts for the assets taken over, crediting the liability accounts for the liabilities assumed and the investment account with its balance. In making this entry, a vendor account is not needed. The dissolving corporation should adjust its net worth to equality with the investment account of the holding company. This may involve setting up goodwill and crediting surplus, or the reverse. The final transfer is shown by debits to liability and net worth accounts and credits to the asset accounts. Thus the dissolution is entered on the books without setting up a vendee account.

Accounting for Consolidation.—Since the only difference between the consolidation and the merger is the fact that all companies lose their identity in a consolidation and one retains it in a merger, the accounting for a consolidation is similar to that for a merger. In the case of the consolidation, opening entries must be made for the new corporation, the books of which will probably not have to be adjusted at all. The entries for the purchase of and payment for the net assets are similar to the entries in the merger. The dissolved organizations are handled just the same from the accounting standpoint, regardless of which form of combination is followed.

Accounting for the Holding Company.—When one corporation purchases a controlling interest in the stock of another, the entry on the books of the holding company is a debit to some such account as Stock of —— Company for the full cost of the stock, including invoice price and brokerage. The credit is to cash, to subscriptions to stock, or to some other appropriate account, depending on the terms of the purchase. As stated in Chapter V, there are two methods of carrying on the accounts. Under the first, the Stock of —— Company account is debited with the share of profits of the subsidiary proportionate to the ownership of the holding company, and credited with the share of losses, the contra credit or debit being to Profit and Loss on Investment in Subsidiaries. When dividends are declared by the subsidiary, the amount is debited to Dividends Receivable and credited to Stock of —— Company. Under the second method, the account, Stock of —— Company, is left at cost unless severe losses force its reduction; when the subsidiary declares dividends, Profit and Loss on Investment in Subsidiaries is credited and Dividends Receivable debited. The profit and loss statement of the holding company will, in either case, include the income from the subsidiaries, but under the first method it will reflect the entire share of the subsidiaries' profit or loss proportionate to the holding company's interest, and under the second it will show only dividends received or receivable by the holding company. Thus there may be wide divergence in

C COMPANY
BALANCE SHEET
December 31, 1931

Assets		Liabilities and Net Worth	
Cash	$ 500,000.00	Capital Stock, Common	$5,000,000.00
Stock of A Company (100%)	5,000,000.00	Capital Stock, Preferred	1,000,000.00
Stock of B Company (100%)	500,000.00		
	$6,000,000.00		$6,000,000.00

A COMPANY
BALANCE SHEET
December 31, 1931

Assets		Liabilities and Net Worth	
Cash	$ 50,000.00	Notes Payable	$ 500,000.00
Inventories	1,500,000.00	Accounts Payable	800,000.00
Accounts Receivable	500,000.00	Capital Stock, Common	1,500,000.00
Real Estate, Buildings, Machinery, and Equipment	1,000,000.00	Surplus	260,000.00
Prepaid Insurance and Taxes	10,000.00		
	$3,060,000.00		$3,060,000.00

B COMPANY
BALANCE SHEET
December 31, 1931

Assets		Liabilities and Net Worth	
Cash	$ 25,000.00	Accounts Payable	$ 140,000.00
Inventories	75,000.00	Capital Stock, Common	100,000.00
Accounts Receivable	150,000.00	Surplus	262,000.00
Real Estate, Buildings, Machinery, and Equipment	250,000.00		
Prepaid Insurance and Taxes	2,000.00		
	$ 502,000.00		$ 502,000.00

FIGURE 116

the profits, and, similarly, the value of the investment on the balance sheet will vary widely, depending on which method of accounting is chosen. It should be remembered that the first method cannot be used unless the holding corporation has a controlling interest in the subsidiary—that is, owns more than half of the voting stock.

The Consolidated Balance Sheet.—After it has absorbed the other companies, the balance sheet of the surviving company in a merger or consolidation will show all of the assets and liabilities it controls. The balance sheet of a holding company, however, may be far from enlightening, for the net assets of each subsidiary are represented on its balance sheet by an investment account which not only fails to reveal what assets are controlled, but may even differ from the book value of those net assets. This is well illustrated in Figure 116, which shows C Company, the holding company, having for its sole assets cash and the entire capital stock issues of A and B Companies. But on B Company's books the net worth appears to be $362,000.00, although its stock is held by C Company at $500,000.00. Similarly, C Company holds at $5,000,000.00 its investment in A Company, in spite of the fact that the total assets of A Company appear on its own balance sheet as $3,060,000.00, and its Capital Stock and Surplus are but $1,760,000.00. Thus it is evident that the balance sheet of a holding company may fall far short of conveying an accurate impression of its own condition, and may fail utterly to depict the state of the combination. For this reason accountants have devised a statement known as a Consolidated Balance Sheet, which shows the combined assets and liabilities of the holding company and its subsidiaries, the capital stock which is actually outstanding in the hands of the public, and the surplus or the deficit of the combination as a whole.

C COMPANY AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEET

December 31, 1931

Assets		Liabilities and Net Worth	
Cash	$ 575,000.00	Notes Payable	$ 500,000.00
Inventories	1,575,000.00	Accounts Payable	840,000.00
Accounts Receivable	550,000.00	Capital Stock, Common	5,000,000.00
Real Estate, Buildings, Machinery, and Equipment	1,250,000.00	Capital Stock, Preferred	1,000,000.00
Prepaid Insurance and Taxes	12,000.00		
Goodwill	3,378,000.00		
	$7,340,000.00		$7,340,000.00

FIGURE 117

Figure 117 illustrates the method of combining statements. The cash and the inventories of all three companies have been added together, the three having in all $575,000.00 in cash, and the inventories of the two operating companies being worth $1,575,000.00 according to their books. A Company has accounts receivable of $500,000.00 and B Company of $150,000.00, a total of $650,000.00. Examination of the books, however, reveals the fact that among A Company's accounts receivable is one of $100,000.00 for sales to B Company. While there is no doubt that legally A Company can collect this amount, such a collection would neither enrich nor impoverish the combination as a whole. Hence, Accounts Receivable are shown as $550,000.00, on the consolidated balance sheet, the debts between the affiliated companies having been eliminated. Likewise the item Accounts Payable on the books of B Company includes $100,000.00 due to A Company. When this $100,000.00 has been deducted from $940,000.00, the sum of the accounts payable on the books of both the subsidiaries, there remains $840,000.00, the net amount owed to outsiders on accounts payable by the combination; and any other intercompany debts would be eliminated by this method. For example, if B Company held notes signed by A Company, their sum would be deducted from both Notes Receivable and Notes Payable in making the consolidated balance sheet. The items for Real Estate, Buildings, Machinery, and Equipment, for Prepaid Insurance and Taxes, and for Notes Payable, as they appear on the consolidated statement, are the sums of the items bearing similar captions on the balance sheets of the associated companies, no intercompany debts demanding elimination in this case.

Just as all intercompany debts must be eliminated in preparing the consolidated balance sheet, so must the stock of one or more companies held by another. In the illustration, C Company holds the entire capital stock of each of the subordinate corporations. Since C Company's stock is held by the public, it should appear on the consolidated statement, but that of the subsidiaries should not. C Company has on its books Stock of A Company, $5,000,000.00, and Stock of B Company, $500,000.00. Inquiry reveals that these investments are valued at cost. C Company has, therefore, paid $5,000,000.00 for the entire net worth of A Company, which is $1,760,000.00 according to its own books. The directors of C Company would pay such a price only if they believed the assets of A Company were understated on its books by $3,240,000.00. Similarly, C Company paid $500,000.00 for the entire net worth of B Company, which appears on the latter's books as $362,000.00, which implies that the directors believe the assets of

C COMPANY AND SUBSIDIARIES
Working Paper for Consolidated Balance Sheet
December 31, 1931

	C Company	A Company	B Company	Eliminations and Adjustments Dr.	Eliminations and Adjustments Cr.	Consolidated Balance Sheet
Debits						
Cash	500,000.00	50,000.00	25,000.00			575,000.00
Inventories		1,500,000.00	75,000.00			1,575,000.00
Accounts Receivable		500,000.00	150,000.00		(a) 100,000.00	550,000.00
Real Estate, Buildings, Machinery, and Equipment		1,000,000.00	250,000.00			1,250,000.00
Prepaid Insurance and Taxes		10,000.00	2,000.00			12,000.00
Stock of A Company (100% interest)	5,000,000.00				(b) 5,000,000.00	
Stock of B Company (100% interest)	500,000.00				(c) 500,000.00	
Goodwill				(b) 3,240,000.00 (c) 138,000.00		3,378,000.00
	6,000,000.00	3,060,000.00	502,000.00			7,340,000.00
Credits						
Notes Payable		500,000.00				500,000.00
Accounts Payable		800,000.00	140,000.00	(a) 100,000.00		840,000.00
Capital Stock, Preferred	1,000,000.00					1,000,000.00
Capital Stock, Common						
A Company		1,500,000.00		(b) 1,500,000.00		
B Company			100,000.00	(c) 100,000.00		
C Company	5,000,000.00					5,000,000.00
Surplus						
A Company		260,000.00		(b) 260,000.00		
B Company			262,000.00	(c) 262,000.00		
	6,000,000.00	3,060,000.00	502,000.00	5,600,000.00	5,600,000.00	7,340,000.00

Figure 118

B Company are undervalued on its books $138,000.00. The sum of these two undervaluations appears on the Consolidated Balance Sheet as Goodwill, $3,378,000.00. This illustrates the orthodox practice in constructing consolidated balance sheets at the time the combination is formed: the investment of the holding company, at cost, is considered the value of the subsidiary, or of that fraction of it, owned by the holding company; any excess on the holding company's books of the investment account over the value of the fraction of the net worth of the subsidiary owned by the holding company according to the books of the subsidiary, is considered goodwill. If the amount of the investment account on the holding company's books is less than the share of the net worth of the subsidiary owned, as shown by the subsidiary's books, the difference is "negative" goodwill and is subtracted from the positive goodwill when the consolidated balance sheet is prepared; but if there is no goodwill from which this negative goodwill can be subtracted, the difference may be considered capital surplus. Some accountants say that when a holding company buys stock of a subsidiary at less than its book value, it has made so fortunate an investment that the difference between purchase price and book value should always be considered capital surplus in making the consolidated balance sheet. On the other hand, it may be argued that any reduction of the goodwill shown tends toward conservatism, and that it is therefore better to decrease goodwill than to increase capital surplus in this way.

The method of consolidating the balance sheets of the holding company and its subsidiaries is exhibited in Figure 118. It will be noticed that a money column is devoted to each of the balance sheets, and a line to each item. Incidentally, all the members of a combination should keep uniform accounts in order that amounts appearing under the same head may be comparable and combinable and in order that comparable and combinable items may appear under the same captions. Two columns are devoted to Adjustments to eliminate intercompany relations, and a final column shows the amounts which are to go into the consolidated balance sheet. (Many accountants use only one column, headed Eliminations, in place of the two for Adjustments.) These adjustments are not made on the books of any of the constituent companies, but only on the work sheet for preparing the consolidated balance sheet. The amounts in the consolidated balance sheet column are found by adding all the sums on the line in the columns for the several companies, and either deducting or adding any amounts on the same line in the adjustments columns. The adjustments in Figure 118 are as follows:

(a) To eliminate from Accounts Receivable and from Accounts Payable $100,000.00 owed by B Company to A Company on open account

(b) To eliminate the investment of C Company in A Company, involving the setting up of $3,240,000.00 Goodwill

(c) To eliminate the investment of C Company in B Company, involving the setting up of $138,000.00 Goodwill.

Working papers are almost indispensable in preparing consolidated statements. They are always planned in the form of Figure 118 or variations from it. If there are many subsidiaries it may prove wise to use a line for each company and a column for each balance sheet item.

XYZ COMPANY
BALANCE SHEET
January 1, 1931

Assets		Liabilities and Net Worth	
Real Estate	$ 50,000.00	Capital Stock	$250,000.00
Building, Plant, and Equipment	75,000.00	Loans	50,000.00
Goodwill	25,000.00	Accounts Payable	50,000.00
Investment in PQ Company, 90% interest	150,000.00	Surplus	100,000.00
Inventories	80,000.00		
Accounts Receivable	70,000.00		
	$450,000.00		$450,000.00

PQ COMPANY
BALANCE SHEET
January 1, 1931

Assets		Liabilities and Net Worth	
Real Estate	$ 25,000.00	Capital Stock	$100,000.00
Building, Plant, and Equipment	45,000.00	Accounts Payable	50,000.00
Inventories	20,000.00	Surplus	25,000.00
Accounts Receivable	85,000.00		
	$175,000.00		$175,000.00

FIGURE 119

Minority Interests in the Consolidated Balance Sheet.—If the holding company owns less than 100 per cent of the voting stock, or, indeed, of all of the stock of the subsidiary, the consolidated balance sheet must show the interests of the minority. This minority interest consists of the par value of the stock owned by the general public, that is, outside of the combination, and of a share of the surplus, including all true reserves.

How the minority interest is calculated and shown is illustrated in Figures 119, 120, and 121. The balance sheets of two corporations are shown in Figure 119: XYZ Company has just acquired for $150,000.00 a ninety-per-cent interest in PQ Company; PQ Company owes the XYZ Company $15,000.00 on open account. The working paper, illustrated in Figure 120, shows the following adjustments:

WORKING PAPER FOR CONSOLIDATED BALANCE SHEET, JANUARY 1, 1931
XYZ COMPANY AND SUBSIDIARY

	XYZ Company	PQ Company	Eliminations and Adjustments		Consolidated Balance Sheet
			Dr.	Cr.	
Assets					
Real Estate	50,000.00	25,000.00			75,000.00
Building, Plant, and Equipment	75,000.00	45,000.00			120,000.00
Goodwill	25,000.00		(c)✓37,500.00		62,500.00
Investment in PQ Co. (90% interest)	150,000.00			(c)✓150,000.00	
Inventories	80,000.00	20,000.00			100,000.00
Accounts Receivable	70,000.00	85,000.00		(d)✓15,000.00	140,000.00
	450,000.00	175,000.00			497,500.00
Liabilities and Net Worth					
Accounts Payable	50,000.00	50,000.00	(d)✓ 15,000.00		85,000.00
Loans	50,000.00				50,000.00
Capital Stock					
XYZ Company	250,000.00				250,000.00
PQ Company		100,000.00	(a)✓ 10,000.00 (c)✓90,000.00		
Surplus					
XYZ Company	100,000.00				100,000.00
PQ Company		25,000.00	(b)✓ 2,500.00 (c)✓22,500.00		
	450,000.00	175,000.00			
Minority Interest					
Stock of PQ Company (10%)				(a)✓ 10,000.00	10,000.00
Surplus of PQ Company (10%)				(b)✓ 2,500.00	2,500.00
			177,500.00	177,500.00	497,500.00

FIGURE 120

(a) To set aside the minority interest in the capital stock of the PQ Company, ten per cent of $100,000.00

(b) To set aside the minority interest in the surplus of the PQ Company, ten per cent of $25,000.00

(c) To eliminate the investment account of XYZ Company in PQ Company stock, $150,000.00, against the book value of that stock, $90,000.00 in the PQ Company's Capital Stock account and $22,500.00 in the PQ Company's Surplus account. Since the investment is carried at its cost, $150,000.00, and the book value of the shares owned is but $112,500.00, the difference, $37,500.00, is set up as Goodwill.

(d) To eliminate the $15,000.00 owed on open account by PQ Company to XYZ Company.

The Consolidated Balance sheet is presented in Figure 121. If a portion of the surplus of a subsidiary is set aside for the holders of minority stock, it seems only fair that, when the subsidiary shows a deficit, a share of it should be shown as a deduction from the par value of such stock, and this procedure is sometimes advocated. On the other hand, it is sometimes argued that the holding company, rather than the owners of such stock, almost invariably suffers for such a deficit, and that it is therefore quite as proper to eliminate the entire deficit of the subsidiary against the surplus of the holding company or the combination. The question of the advisability of making consolidated statements frequently arises. Under the 1928 Income Tax Law affiliated groups of corporations are given the privilege of making consolidated returns. "An 'affiliated group' means one or more chains of corporations connected through stock ownership with a common parent corporation if—

CONSOLIDATED BALANCE SHEET
THE XYZ COMPANY AND ITS SUBSIDIARY
January 1, 1931

Assets			
Current Assets			
Accounts Receivable		$140,000.00	
Inventories		100,000.00	$240,000.00
Fixed Assets			
Real Estate		$ 75,000.00	
Buildings, Plants, and Equipment		120,000.00	195,000.00
Intangible Asset			
Goodwill			62,500.00
Total Assets			$497,500.00
Liabilities			
Current Liabilities			
Accounts Payable	$85,000.00		
Loans	50,000.00	$135,000.00	
Minority Interest			
Capital Stock PQ Company	$10,000.00		
Surplus PQ Company	2,500.00	12,500.00	
Total Liabilities			147,500.00
Net Worth			
Capital Stock		$250,000.00	
Surplus		100,000.00	
Total Net Worth			$350,000.00

FIGURE 121

"(1) At least 95 per centum of the stock of each of the corporations (except the common parent corporation) is owned directly by one or more of the other corporations; and

"(2) The common parent corporation owns directly at least 95 per centum of the stock of at least one of the other corporations.

"As used in this subsection the term 'stock' does not include nonvoting stock which is limited and preferred as to dividends." Those groups which elect to make the consolidated returns are required to submit to appropriate regulations. Accounting authorities frequently suggest that such statements are generally desirable if the holding company owns as much as 75 per cent of the voting stock of the subsidiary; but there might be occasion for consolidating statements in cases where the holdings of the parent company are proportionally smaller.

Consolidated Balance Sheets of Public Utilities.—An entirely different principle is usually introduced in consolidating the balance sheets of public utility companies, a principle which might be applied to most other combinations. When the stock of a subsidiary is acquired, the properties of the subsidiary are reappraised, and the appraisals written on to its books. The usual result is that the subsidiary sets up a capital surplus sufficient to make the book value of the stock owned by the holding company at least equal the cost of the investment. This procedure is justified by the belief that no more would be paid for the stock than the properties it represents are really worth. If the book value exceeds the cost of the investment, the explanation is that a bargain purchase has been made and that the purchaser is showing the excess value in the capital surplus account. When such appraisals have been made and placed on the books of the subsidiaries, no goodwill of consolidation will remain on the consolidated balance sheet, and thus the whole vexing question of valuing this goodwill is eliminated.

Summary.—Various potent factors have caused widespread combination among the business units of the United States.

These combinations now take four main forms: the lease, the merger, the consolidation, and the holding company. The lease is legal under common law, and the other three forms of combination are allowed expressly by statute in many states. Yet under either state or federal statutes a combination may be held to be illegal if it creates unreasonable restraint of trade, if it substantially lessens competition, or if it establishes a monopoly, except that regulated monopolies are legally approved for public utilities.

Accounting for either the merger or the consolidation follows the same principles as that for the purchase and sale of businesses, the surviving corporation being the purchaser and the absorbed businesses being sold and dissolved. If, however, the surviving corporation in a merger is a holding company which absorbs one of its subsidiaries, the entries are not exactly those of a purchase-sale transaction.

After the completion of the consolidation or the merger, the bookkeeping is merely that of one corporation, the survivor.

When a holding company purchases a controlling interest in the stock of a subsidiary, a properly named investment account is debited at the full cost of the acquisition. Subsequent accounting takes one of two forms: either the investment is kept at cost and the income on it is shown only by profit-and-loss entries as dividends are declared by the subsidiaries, or the investment account is debited with the parent company's share of the profits periodically reported by the subsidiary and credited with the proper share of losses and with the amount of dividends actually received.

Since the balance sheet of the holding company fails to present an accurate picture of the status of the combination, accountants make consolidated balance sheets whenever the situation will be clarified by such statements.

In making a consolidated balance sheet at the time of acquisition, the combined assets and liabilities of the affiliated companies are shown, after eliminating intercompany debts. The investment of the parent company in each subsidiary is eliminated against the share of capital stock and of surplus of the subsidiary owned by it. This elimination involves setting up goodwill if the parent company paid more for the subsidiary's stock than its book value at the time of acquisition, or capital surplus if the book value exceeded the purchase price, unless this excess can be deducted from goodwill otherwise created.

However, the setting up of consolidation goodwill may be avoided by recording appraisals of the assets of the subsidiaries at values sufficient to make the book value of the stock at least equal to the price paid for it by the holding company.

If a subsidiary is not completely owned by the holding company, the minority holdings of its stock and the minority interest in its surplus should be shown on the consolidated balance sheet. Some accountants exhibit in this balance sheet the minority share of the deficit of a subsidiary, while others eliminate the whole of such a deficit against the surplus of the combination.

In making a consolidated balance sheet, the minority interest in each subsidiary should be considered separately, and the investment account in each subsidiary must be eliminated separately.

It should be noted that the consolidated balance sheet does not show legal relations, for the holding company and subsidiaries do not constitute a legal entity. Therefore the close study of the affairs of the combination requires the individual balance sheets as well as the consolidated statement.

Further problems of the consolidated balance sheet will be considered in the following chapter.

QUESTIONS

1. Report on your state statute on the merging and consolidation of corporations.
2. Report on your state statute on the holding by corporations of the stock of other corporations.
3. What is the difference in accounting for a merger if the surviving corporation is a holding company previous to the merger and if it is not?
4. Point out the differences in the process of constructing the balance sheet of the combination in case of the holding company and of the consolidation.
5. Point out exactly the differences that result from the two different ways of accounting for the investment income of the holding company.
6. Describe "negative" goodwill, and show clearly why some accountants prefer to call it capital surplus when it arises out of the attempt to eliminate an investment account in preparing a consolidated balance sheet.
7. It has been suggested that the excess of the investment account on the books of the holding company over the book value of the stock purchased should not be considered goodwill at all, but should be deducted from surplus in preparing the consolidated balance sheet. Give your reason for approving or rejecting this suggestion.
8. Why is the minority interest shown as a liability in Figure 121?
9. In preparing the consolidated balance sheet, why must the minority interest for each subsidiary be considered separately? Why must each investment account be considered separately?
10. Since the legal title to its assets and the legal obligation to pay its liabilities remains with the subsidiary company, does the consolidated balance sheet show the true situation?

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CHAPTER XXV

THE CONSOLIDATED BALANCE SHEET AFTER ACQUISITION

Elimination of the Investment Account after Acquisition.—The making of consolidated balance sheets at dates subsequent to the acquisition of the stock of the subsidiaries by the holding company, involves several problems which are not present when statements are constructed as of the date of purchase. Perhaps the most important of these problems is the elimination of the investment account against the capital stock and surplus of the subsidiaries. In making such eliminations these cardinal principles should be kept in mind:

1. That the goodwill of consolidation does not vary from period to period, except as a result of further purchases or sale of the stock of subsidiaries by the holding company.
2. That the minority interest in the capital stock and in the surplus of subsidiaries should be set aside for presentation as liability items after considering the proportion of stocks of each class held by the minority and the peculiar rights of such stockholders.
3. That if the elimination of the investment account involves a contraelimination against a subsidiary surplus greater than the holding company's share of that surplus, the excess must be subtracted from the combination surplus.

Some illustrations will clarify these principles.

Let it be supposed that on January 1 the H Company acquires for $150,000.00 the entire issue of common stock of the S Company, the par value of which is $100,000.00. The balance sheet of the S Company shows a surplus of $30,000.00, and there is no preferred stock. The elimination at the time of acquisition will take the following form:

Capital Stock, S Company	$100,000.00	
Surplus, S Company	30,000.00	
Goodwill	20,000.00	
Investment, S Company Stock		$150,000.00

This of course is not an entry for a journal, but the adjusting elimination on the work sheet.

If the holding company maintains the investment account at cost, there will be no change in its amount unless it purchases a new issue of the subsidiary's stock. H Company will recognize income from S Company only when the latter declares dividends. In that case the entry on the books of H Company will be:

Dividends Receivable	xxxx	
Income from Subsidiaries		xxxx

Suppose that, under these conditions, it is desired to make a consolidated balance sheet as of June 30 when the S Company surplus is $40,000.00. The elimination may be represented thus:

Capital Stock, S Company	$100,000.00	
Surplus, S Company	30,000.00	
Goodwill	20,000.00	
Investment, S Company Stock		$150,000.00

This is identical with the elimination at the time of acquisition. But there will be left in the S Company a surplus of $10,000.00, which will appear on the consolidated statement as a part of the surplus of the combination, having been added to that of the H Company.

On the other hand, if the balance sheet of S Company at June 30 shows a surplus of only $20,000.00, the elimination will have to be:

Capital Stock, S Company	$100,000.00	
Surplus, S Company	20,000.00	
Goodwill	20,000.00	
Surplus, Combination	10,000.00	
Investment, S Company Stock		$150,000.00

Since the S Company surplus is not sufficient to absorb the necessary elimination, the excess has to be taken from the surplus of the combination. This elimination avoids the temptation to violate the principles of sound accounting by setting up the combined goodwill as $30,000.00, and thus valuing this intangible at $10,000.00 more than was paid for it. Neither losses nor the distribution of dividends enhance goodwill. The elimination proposed keeps goodwill at its cost price and makes the consolidated balance sheet harmonize with the decrease shown in the surplus of the subsidiary.

Let the supposition now be varied to illustrate the principles as applied to the situation when there is a minority interest in the subsidiary. The H Company on January 1 acquired ninety per cent of the common stock of the T Company for $125,000.00. The balance sheet of the T Company at that time showed Capital Stock $100,000.00 and Surplus $30,000.00. The elimination in consolidating balance sheets on January 1 would be:

Capital Stock, T Company	$ 90,000.00	
Surplus, T Company	27,000.00	
Goodwill	8,000.00	
Investment, Stock of T Company		$125,000.00

This allows the $10,000.00 interest in the stock to stand, and also the $3,000.00 interest in the surplus of the minority shareholders. Still assuming that H Company keeps the investment account at cost, let it be supposed that June 30, when balance sheets are to be consolidated, the T Company has a surplus of $20,000.00. Evidently the minority interest in this surplus is $2,000.00. On the work sheet for consolidation it is well first to adjust for the minority interest, and then to eliminate the investment account, thus:

Capital Stock, T Company	$ 10,000.00	
Surplus, T Company	2,000.00	
Minority Interest, T Company		$ 12,000.00
Capital Stock, T Company	90,000.00	
Surplus, T Company	18,000.00	
Goodwill	8,000.00	
Surplus, Combination	9,000.00	
Investment, T Company Stock		$125,000.00

This rule may be summarized as follows: If the holding company maintains its investment at cost, the elimination in consolidation of balance sheets will be identical, each time the statement is made, with the elimination at the time of acquisition, except that if the subsidiary surplus is smaller than at the time of acquisition, the excess of the holding company's original interest in this surplus over the interest at the later date must be deducted from the combination surplus.

If the holdings of the stock of a subsidiary have been purchased at different times, the amount to be set up as goodwill will be a composite of the goodwill items as calculated on the several purchases. Assume that the U Company has a capital stock of $100,000.00. On January 1 its surplus was $25,000.00 and on June 30 it was $30,000.00. On January 1 the H Company purchased a sixty-per-cent interest in the U Company for $85,000.00, and on June 30 an additional twenty-five per cent of the stock for $35,000.00. In consolidating balance sheets as of June 30 or subsequent dates the basic elimination will be:

Capital Stock, U Company	$ 85,000.00	
Surplus, U Company	22,500.00	
Goodwill	12,500.00	
Investment, U Company Stock		$120,000.00

These amounts are determined as follows: The January 1 purchase procured:

Stock—60% of $100,000.00	$ 60,000.00	
Surplus—60% interest in $25,000.00	15,000.00	
Book value of investment		$ 75,000.00
Goodwill		10,000.00
Investment		$ 85,000.00

And the June 30 purchase may be analyzed as follows:

Stock—25% of $100,000.00	$ 25,000.00	
Surplus—25% interest in $30,000.00	7,500.00	
Book value of investment		$ 32,500.00
Goodwill		2,500.00
Investment		$ 35,000.00

Combining these two analyses reveals that the total purchase of goodwill was $12,500.00, and the total interest in surplus paid for was $22,500.00, while the par value of the shares was $85,000.00. Therefore these figures will be used in making the eliminations for subsequent balance sheets, against the investment of $120,000.00. It should be noted that some accountants advocate determining the goodwill of consolidation on the basis of the cost of the entire holding of stock and the book value of such stock at the date of the latest acquisition.

The elimination will be slightly different in the case of holding companies which take up on their own books their interests in the profits and losses of their subsidiaries. If the holding company debits the investment account and credits an income account whenever the subsidiary reports a profit, debits a loss account and credits the investment account when it reports a loss, and debits Dividends Receivable and credits the investment account whenever it declares a dividend, then the balance of the investment account will always equal the value of the stock owned, according to the books of the subsidiary, plus the goodwill in the original purchase, or minus the negative goodwill. Therefore the elimination of the investment account will always be balanced by eliminating the exact proportion of the stock and of the surplus of the subsidiary owned by the holding company and by setting up goodwill, or negative goodwill.

This may be exemplified by supposing that on January 1 the holding company H has procured ninety per cent of the stock of W Company at a cost of $135,000.00. On that date the capital stock of the W Company was $100,000.00, and the surplus $40,000.00. The elimination as at the date of acquisition would be:

Capital Stock, W Company	$ 90,000.00	
Surplus, W Company	36,000.00	
Goodwill	9,000.00	
Investment, W Company Stock		$135,000.00

On June 30 a dividend of twenty per cent of the capital stock is declared by the directors of the W Company, profits of $30,000.00 having been made during the six months. The entries on the books of H Company would be:

Investment, W Company Stock	$ 27,000.00	
Income from Investment in Subsidiaries		$ 27,000.00
To place upon the books 90% of the profits earned by the W Company in the six months ended June 30, being the interest of H Company in these profits.		
Dividends Receivable	18,000.00	
Investment, W Company Stock		18,000.00
To take up dividend receivable as declared by W Company June 30, payable ————.		

When these entries have been made, the investment account will have a debit balance of $144,000.00. After the dividend has been recorded as a liability, the surplus will appear as $50,000.00 on the books of W Company. If now a consolidated balance sheet is to be prepared, the elimination will be:

Capital Stock, W Company	$ 90,000.00	
Surplus, W Company	45,000.00	
Goodwill	9,000.00	
Investment, W Company Stock		$144,000.00

Such an elimination will always leave the correct figures for the minority interest in the capital stock and surplus accounts of the subsidiary.

Whether the holding company takes up the profits and losses of the subsidiary or maintains the investment account at cost, the elimination of the investment account on the work sheet for consolidating the balance sheets will always (1) eliminate that entire account, (2) set up the same positive or negative goodwill as was the case at acquisition, and (3) eliminate the holding company's share of the capital stock of the subsidiary. If the holding company takes up the subsidiary's profits and losses, the elimination will be balanced by eliminating the holding company's interest in the subsidiary's surplus. But if the holding company has maintained the investment at cost and if the surplus of the subsidiary has decreased, eliminating the holding company's original share of the subsidiary's surplus may entail a debit to the consolidated surplus. In either case the consolidated balance sheet should show the full interest of the minority in the capital and surplus of each subsidiary.

It should be observed that these devices for valuing the goodwill of consolidation are entirely unnecessary if, upon acquisition of the subsidiary, its assets are appraised and the appraisals placed on the books, provided the recording of the appraisal has made the book value of the stock equal to or greater than its cost to the holding company.

This method of appraisal, provided the valuations are made honestly, obviates the necessity of showing an intangible on the books and distributes the values paid among the several assets owned by the subsidiary according to what is believed to be their true worth. The procedure of taking the results of appraisals on the books was covered in Chapter IV. If the appraisal method is used, and if the book value of the subsidiary stock exceeds the cost of the investment, the excess is absorbed in Capital Surplus when the balance sheets are consolidated.

BALANCE SHEETS

THE JONES INVESTMENT COMPANY AND SUBSIDIARIES

June 30, 1930

	Jones Investment Company	A Company	B Company	C Company
Debits				
Investments in Other Companies				
A Co., 60% interest—Cost $900,000.00	$1,000,000.00			
B Co., 75% interest at cost	600,000.00			
C Co., 80% interest at cost	400,000.00			
Advances to A Co.	100,000.00			
Advances to C Co.	50,000.00			
Cash	50,000.00	$ 100,000.00	$ 10,000.00	$ 50,000.00
Accounts Receivable		100,000.00	50,000.00	100,000.00
Inventories		200,000.00	100,000.00	50,000.00
Plant		1,000,000.00	600,000.00	400,000.00
Deficit			40,000.00	
Total Debits	$2,200,000.00	$1,400,000.00	$800,000.00	$600,000.00
Credits				
Capital Stock	$2,000,000.00	$1,000,000.00	$800,000.00	$400,000.00
Jones Investment Company		100,000.00		50,000.00
Surplus	200,000.00	300,000.00		150,000.00
Total Credits	$2,200,000.00	$1,400,000.00	$800,000.00	$600,000.00

Summary of Surplus Accounts

	Jones Investment Company	A Company	B Company	C Company
Balance, June 30, 1929	$ 100,000.00	$ 200,000.00	$ 4,000.00	$100,000.00
Surplus Income				
6 months to Dec. 31, 1929		180,000.00	46,000.00	25,000.00
6 months to June 30, 1930	217,500.00	220,000.00	40,000.00[a]	25,000.00
Increase in value of A Co. stock	100,000.00			
Dividends paid Jan., 1930	217,500.00[a]	300,000.00[a]	50,000.00[a]	
Balance, June 30, 1930	$ 200,000.00	$ 300,000.00	$ 40,000.00[a]	$150,000.00

[a] Debits.

Supplementary Information

1. The Jones Investment Company has no other source of income than its dividends from the subsidiaries, which are taken on the books as they are received.
2. By order of the board of directors of the Jones Investment Company, its investment in the stock of the A Company was written up $100,000.00 on June 30, 1930.
3. The inventories of the A company include $100,000.00 of merchandise purchased from C Company in 1930. The cost of these goods to C Company was $90,000.00.
4. In September, 1929, A Company built a plant for C Company at a cost of $80,000.00, for which C Company was charged $95,000.00.
5. The investment company acquired the stock of the subsidiaries June 30, 1929.

FIGURE 122

Extended Illustration.—Most of the difficulties encountered in constructing a consolidated balance sheet at dates subsequent to the acquisition of the subsidiary stock arise in the illustration of the work sheet in Figure 123 and the final consolidated statement in Figure 124. Figure 122 presents the data concerning the Jones Investment Company and its three subsidiaries which are to be the basis of a consolidated balance sheet. The eliminations affecting the holding company's investments in the subsidiaries will be discussed in this section, and those affecting intercompany profits will be considered in the next.

The logical first step is to set aside the minority interests in the several subsidiary companies. Since the holding company owns only 60 per cent of the stock of A Company, 40 per cent of the stock and 40 per cent of its surplus is a minority interest. This interest is set up by entries (a) and (b). (All entries referred to are on Figure 123.) The minority interest in B Company is 25 per cent. Entry (c) sets aside 25 per cent of the capital stock of B Company as a minority interest. B Company has a deficit instead of a surplus. Since 25 per cent of this deficit will legally fall upon the minority interests, the other 75 per cent falls upon the combination. This is adjusted by entry (j) which transfers 75 per cent of the B Company deficit to Surplus, leaving the balance to be deducted from the capital stock of the minority on the consolidated balance sheet. The minority interest in C Company is 20 per cent, which is set up by entries (d) and (e).

The Jones Investment Company acquired its holdings in the subsidiaries June 30, 1929, at which time the net worth of the A Company consisted of Capital Stock $1,000,000.00 and Surplus $200,000.00. A sixty-per-cent interest was purchased for $900,000.00. The investment would therefore be eliminated on June 30, 1930, by the entry:

Capital Stock, A Company (60%)	$600,000.00	
Surplus A Company (60% of Surplus as of June 30, 1929)	120,000.00	
Goodwill	180,000.00	
Investment, A Company Stock		$900,000.00

This entry sets up goodwill as it would have been at the date of acquisition, and eliminates the capital stock and the surplus purchased at that time. These amounts are used because the investment has been kept on the Jones Investment Company books without taking up the profits of A Company. However, the investment in A Company stock has been written up on the books of the Jones Investment Company by $100,000.00, with a counter credit to surplus. There is no valid reason for setting up an additional $100,000.00 for goodwill that has never been paid for, so the entry increasing the value of the invest-

WORKING PAPER FOR CONSOLIDATED BALANCE SHEET, JUNE 30, 1930
JONES INVESTMENT COMPANY AND SUBSIDIARIES

	Jones Investment Company	A Company	B Company	C Company	Eliminations and Adjustments		Consolidated Balance Sheet
					Dr.	Cr.	
Debits							
Investment A Co. Stock, 60%	1,000,000.00					(f) 900,000.00	
						(g) 100,000.00	
Investment B Co. Stock, 75%	600,000.00					(h) 600,000.00	
Investment C Co. Stock, 80%	400,000.00					(i) 400,000.00	
Advances to A Co.	100,000.00					(k) 100,000.00	
Advances to C Co.	50,000.00					(k) 50,000.00	
Cash	50,000.00	100,000.00	10,000.00	50,000.00			210,000.00
Accounts Receivable		100,000.00	50,000.00	100,000.00			250,000.00
Inventories		200,000.00	100,000.00	50,000.00			350,000.00
Plant		1,000,000.00	600,000.00	400,000.00			2,000,000.00
Deficit			40,000.00			(j) 30,000.00	M 10,000.00
Goodwill					(f) 180,000.00	(h) 3,000.00	177,000.00
	2,200,000.00	1,400,000.00	800,000.00	600,000.00			2,997,000.00
Credits							
Capital Stock, Jones Investment Co.	2,000,000.00						2,000,000.00
A Company		1,000,000.00			(a) 400,000.00		
					(f) 600,000.00		
B Company			800,000.00		(c) 200,000.00		
					(h) 600,000.00		
C Company				400,000.00	(d) 80,000.00		
					(i) 320,000.00		
Surplus, Jones Investment Co.	200,000.00				(g) 100,000.00		50,375.00
					(h) 3,000.00		
					(j) 30,000.00		
					(l) 8,000.00		
					(m) 8,625.00		
A Company		300,000.00			(b) 120,000.00		60,000.00
					(f) 120,000.00		
C Company				150,000.00	(e) 30,000.00		40,000.00
					(i) 80,000.00		
Liability to Jones Investment Co.		100,000.00		50,000.00	(k) 150,000.00		
Minority Interests							
A Co., Capital Stock						(a) 400,000.00	400,000.00
Surplus						(b) 120,000.00	120,000.00
B Co., Capital Stock						(c) 200,000.00	200,000.00
C Co., Capital Stock						(d) 80,000.00	80,000.00
Surplus						(e) 30,000.00	30,000.00
Reserve for Intercompany Profits in Inventories						(l) 8,000.00	8,000.00
Reserve for Intercompany Profits in Plant						(m) 8,625.00	8,625.00
	2,200,000.00	1,400,000.00	800,000.00	600,000.00	3,029,625.00	3,029,625.00	2,997,000.00

FIGURE 123

ment in A Company stock is reversed on the working paper by entry (g), and the cost value of the investment is eliminated by entry (f). Perhaps it should be recalled that many accountants do not consider the consolidation of balance sheets justifiable in cases of ownership of less than seventy-five per cent of the voting stock of the subsidiary.

In buying 75 per cent of the stock of B Company June 30, 1929, the Jones Investment Company secured an equity in $600,000.00 par value of stock and $3,000.00 surplus. Since the purchase price was $600,000.00, there was a negative goodwill of $3,000.00. The adjustment as of June 30, 1930, would be normally as follows:

Capital Stock, B Company (75%)	$600,000.00	
Surplus, B Company (75% of Surplus as of June 30, 1929)	3,000.00	
Investment, B Company Stock		$600,000.00
Goodwill		3,000.00

Since, however, B Company has no surplus on June 30, 1930, it is impossible to debit Surplus, B Company, $3,000.00, and therefore this sum is debited against the surplus of the Jones Investment Company, which is equivalent to eliminating $3,000.00 of the surplus of the combination, entry (h).

Since the 80-per-cent interest in C Company was purchased June 30, 1929, for $400,000.00, which was exactly its book value, no goodwill arose out of the transaction. The work sheet entry (i), is therefore very simple.

Capital Stock, C Company (80%)	$320,000.00	
Surplus, C Company (80% of Surplus as of June 30, 1929)	80,000.00	
Investment, C Company Stock		$400,000.00

By this series of adjustments, (a) to (j), the minority interests have been set up on the working paper, and the investment accounts on the books of the holding company have been properly eliminated. Since there have been no stock issues by the subsidiaries subsequent to the acquisition of their stock by the holding company, and since the holding company has not taken up profits of subsidiaries on its books, the entries for the elimination of the investment accounts have been with two exceptions, just what they would have been at the date of acquisition: the write-up of the value of the investment in A Company stock had to be reversed, and the surplus of the holding company had to be charged with the $3,000.00 which would have been debited to B Company surplus had that been possible. As a result of these eliminations, there is contributed to the surplus of the consolidated balance sheet $60,000.00 from A Company and $40,000.00 from C Company. The procedure in eliminating investments follows strictly the rule stated in the first section of this chapter.

Profits on Intercompany Transactions.—When one company in an affiliated group sells merchandise at a profit to another member of the group, and that merchandise is included in the inventory at the time the consolidated balance sheet is to be constructed, the surplus in this statement may be inflated because of the unrealized profit in the inventory, and this profit should, therefore, be eliminated. Some of the problems in this connection are illustrated in the situation of the Jones Investment Company and its subsidiaries. During 1930, C Company had sold merchandise to A Company. On June 30, 1930, the A Company's inventory included items for which that company had paid C Company $100,000.00, although the cost to the C Company had been but $90,000.00. Obviously there is unrealized profit in this inventory. The profit on this intercompany transaction was $10,000.00, of which 20 per cent, $2,000.00, belongs to the minority stockholders of C Company and so should not be eliminated. Thus only $8,000.00 is subject to elimination, which is accomplished by a debit to Surplus and a credit to Reserve for Intercompany Profits in Inventories, entry (l) on the working paper.

The rules for determining the amount of the reserve for unrealized intercompany profits in inventories can be stated thus:

1. If two subsidiary companies are parties to the transaction, reserve the unrealized intercompany profits in the same proportion as the holding company owns the stock of the selling company.
2. If the subsidiary sold to the holding company, reserve these profits in the same proportion as the holding company owns the subsidiary's stock.
3. If the holding company sold to the subsidiary, reserve all the unrealized profits.
4. Transactions consummated before the combination was formed are not sources of unrealized intercompany profits.

In the interpretation of these rules it should be remarked that an attempt is made, in every case, to find that part of the intercompany unrealized profit which belongs to the holding company. In a complicated case where merchandise has been sold by one subsidiary to another, and then sold by the second to a third, the holding company's interest in the unrealized net profit in the third subsidiary's inventory may be determined only by careful analysis.

In consolidating statements for income tax purposes, the Treasury Department permits all of the intercompany unrealized net profits to be reserved. The government is treating the combination as a unit, and does not, in this case, consider the interests of the minority stockholders. Some accountants prefer to reserve the whole of any intercompany unrealized profits because this practice is more conservative than attempting to apportion them between the controlling and the minority interests.

Another intercompany transaction involving profit was A Company's erection of a plant for C Company at an actual cost of $80,000.00, although the charge to C Company was $95,000.00, thus creating an intercompany profit of $15,000.00. Since the Jones Investment Company holds 60 per cent of the stock of A Company, it has a 60-per-cent interest in this profit, which amounts to $9,000.00. This $9,000.00 would be the correct amount to reserve for unrealized profit if the consolidated balance sheet were being made directly after the completion of the building. However, as the plant is written down by depreciation entries, this unrealized profit in its valuation will be reduced from period to period. It was assumed that the expected life of the plant in question was eighteen years. Since one-eighteenth of its cost to C Company will be allowed each year for depreciation, one-eighteenth of the unrealized profit will disappear each year. Therefore, one year after its completion the reserve for unrealized profit should be $8,500.00, two years after completion $8,000.00, and so on. Since the consolidated balance sheet for the Jones Investment Company is being prepared nine months after the erection of the plant, the reserve should be $9,000.00 less 75% of $500.00, or $8,625.00, entry (m).

The general principles of the elimination of intercompany profits on fixed assets from the consolidated balance sheet can be expressed thus:

1. At the time of the transaction the holding company has an interest in the intercompany profit proportional to its interest in the selling company.
2. At balance sheet dates subsequent to the date of the transaction, the reserve, as so determined, should be reduced proportionally to the diminution of the expected life of the fixed asset involved.

However, in setting up reserves for intercompany profits on the consolidated balance sheet, some accountants reserve the entire intercompany profit, adjusted for depreciation.

Other Specific Problems in Making Consolidated Balance Sheets.—Most of the other problems that arise in the construction of consolidated balance sheets yield to rather simple analysis, and in this section a number of them will be touched briefly.

THE JONES INVESTMENT COMPANY AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEET
June 30, 1930

Assets			
Current Assets			
Cash		$ 210,000.00	
Accounts Receivable		250,000.00	
Inventories	$350,000.00		
Less: Reserve for Intercompany Profits	8,000.00	342,000.00	
			$ 802,000.00
Fixed Assets			
Plant		$2,000,000.00	
Less: Reserve for Intercompany Profits		8,625.00	
			1,991,375.00
Intangible Assets			
Goodwill			177,000.00
Total Assets			$2,970,375.00
Liabilities			
Minority Interests			
A Company, 40%			
Capital Stock	$400,000.00		
Surplus	120,000.00	$ 520,000.00	
B Company, 25%			
Capital Stock	$200,000.00		
Less: Deficit	10,000.00	190,000.00	
C Company, 20%			
Capital Stock	$ 80,000.00		
Surplus	30,000.00	110,000.00	
Total Liabilities			$ 820,000.00
Net Worth			
Capital Stock		$2,000,000.00	
Surplus		150,375.00	
Total Net Worth			2,150,375.00
Total Liabilities and Net Worth			$2,970,375.00

FIGURE 124

If one of the affiliated companies has given its notes to another of the companies, in preparing the consolidated balance sheet the notes payable of the one unit will be eliminated against the notes receivable of the other. But if the company receiving the notes discounts them outside the combination, they constitute a liability to outsiders, and the elimination will be of notes receivable against the notes receivable discounted shown on the balance sheet of the company which took them.

If one company owns bonds of another, they may be eliminated against bonds payable. However, it is better to make no elimination but, in the consolidated statement, to show "Treasury Bonds" as a deduction from Bonds Payable, the net amount of the bonds in the hands of outsiders appearing among the fixed liabilities. If the bonds were bought directly from the issuing company, the owning company's premium or discount can be eliminated against the premium or discount of the debtor company. But if the company owning them bought, on the open market at a premium or discount, bonds originally issued at par, the premium or discount is treated as a deferred item, as there is nothing against which it can be properly eliminated.

If one of the affiliated companies has declared but not paid a dividend, the company which is to receive it should set up the receivable dividend on its books, in order that there may be proper elimination. Similarly, accruals of interest due from one company to another should be set up on the books of each, and then eliminated in preparing the consolidated balance sheet.

If a holding company owns stock in a subholding company, the consolidated balance sheet of the subholding company and its subsidiaries usually should be prepared first. This preliminary statement can then be combined with the balance sheet of the main holding company and its other subsidiaries.

If there are several classes of stock, a careful analysis should be made to determine the rights of each class in the surplus of the company which issued it. Preferred stock, for example, may be both cumulative and participating. Such an issue would usually require the setting aside of parts of the surplus of the subsidiary for the minority interest of the preferred stockholders.

If some of the stock has no par value, its value as shown on the books of the subsidiary issuing it must be eliminated, or shown as minority interest.

Another difficulty that may arise is the determination of the minority interests when a subsidiary controls a *sub*subsidiary and when the holding companies do not take up the profits of the subsidiaries by debiting the investment accounts with the proportionate shares of the gains. In such circumstances the minority interests will include the interest of the minority of the subsidiary in the surplus of the *sub*subsidiary. To illustrate this principle, suppose that H Company owns ninety per cent of the stock of P Company, and that P Company owns ninety-five per cent of the stock of S Company; the capital stock of P Company is $400,000.00 and its surplus is $150,000.00, while the capital stock of S Company is $200,000.00 and its surplus is $100,000.00. The minority interests can be computed as follows:

Interest of minority holders of S Company stock		
Stock, 5% of $200,000.00	$10,000.00	
Surplus, 5% of 100,000.00	5,000.00	$15,000.00
Interest of minority holders of P Company stock		
Stock, 10% of $400,000.00	$40,000.00	
Surplus, 10% of 150,000.00	15,000.00	
	$55,000.00	
Surplus of S Company 10% of 95% of $100,000.00	9,500.00	64,500.00
Total minority interests		$79,500.00

Thus, whenever there are subholding companies, it is necessary to analyze carefully the interests of each minority in order to ascertain whether there should be any inclusion of elements from the surpluses of the *sub*subsidiaries.

It should be constantly borne in mind that the adjustments made on the working paper for a consolidated balance sheet do not appear on the books of the corporations concerned. The combination goodwill may not appear at all on any of the ledgers. When a consolidated statement is constructed, there should be preserved, along with the working paper, a full explanation of each of the adjustments and eliminations. This will be of value not only in defending the balance sheet in case of challenge, but also in making future statements.

Summary.—In preparing consolidated balance sheets at dates subsequent to the formation of the combination, it is necessary to eliminate the entire investment account in each subsidiary as shown on the statement of the holding company. In making this elimination there should be the same combination goodwill as at acquisition, unless there have been additional stock purchases at prices different from book value. The differences between the payments for subsequent purchases of stock and the book value of that stock should be added to or subtracted from goodwill at acquisition. Similarly, sales of holdings will affect combination goodwill.

In preparing consolidated balance sheets, the minority interests should be formally set aside before eliminating investment accounts.

Profits on intercompany transactions should be eliminated. Unrealized profits in inventories are eliminated by crediting a reserve for unrealized profits and debiting surplus, either for that proportion of the unrealized profit that belongs to the holding company, or for the entire amount. Transactions consummated prior to affiliation are not intercompany transactions for this purpose.

Profits accruing from intercompany sales of fixed assets are eliminated in the consolidated balance sheet by the establishment of reserves equal to the holding company's interest in such profits at the time of the transaction, and decreased in the same proportion that the assets have depreciated since that time.

Other intercompany relations should be eliminated after a study of their nature. For example, bonds payable of one company held by another in the group are shown as treasury bonds, instead of being eliminated.

The nature of preferred stocks should be analyzed to determine what rights, if any, the preferred stockholders have in the surplus.

In constructing consolidated balance sheets an intelligent analysis of the specific problem is more important than an attempt to frame exact rules.

QUESTIONS

1. In constructing the consolidated balance sheet, why is the problem of eliminating the investment of the holding company in the subsidiary more complicated at later periods than at the time of acquisition?
2. Suppose the holding company receives a stock dividend from a subsidiary in which it does not have a 100-per-cent interest. How will such a dividend affect the elimination of the investment account in making the consolidated balance sheet?
3. In a consolidated balance sheet made subsequent to the formation of the combination, why isn't the exact amount of the surplus of each of the subsidiaries eliminated? What is done with that part not eliminated and not set aside for minority interests?
4. Suppose the main holding company has a 75-per-cent interest in a subsidiary, and the subsidiary owns a ten-per-cent interest in the main holding company. What eliminations would be necessary, and how would you make them?
5. One of the subsidiaries in a certain combination owns stock in another. How will this affect the eliminations necessary in making the consolidated balance sheet?
6. Why must intercompany profits in inventories be eliminated in making a consolidated balance sheet? Discuss the method of doing this, and show how the amount of such elimination can be determined.
7. Discuss the elimination of intercompany profits in fixed assets.
8. A subsidiary sold some of its bonds on the open market at a discount. Later some of these bonds were purchased by the holding company at a premium. How will these bonds and their discount and premium be treated on the consolidated balance sheet?

9. Discuss the need of companies in the same combination for uniform methods of accounting.
10. In drawing up consolidated balance sheets, why aren't the profits on intercompany transactions occurring before the combination eliminated?

REFERENCES FOR SUPPLEMENTARY READING

See Chapter XXIV.

CHAPTER XXVI

THE CONSOLIDATED STATEMENT OF PROFIT AND LOSS

The Consolidated Work Sheet.—The consolidated statement of profit and loss may be constructed from either of two forms of work sheets: the first involves the complete adjusted trial balances of all the companies in the combination, while the second involves merely their profit and loss statements or the nominal accounts. The statement of cost of manufacture and the balance sheet can also be made from the first type of work sheet. Needless to say, if the trial balances are long, it is often wise to separate the work sheet into a series of papers.

Figure 125 presents the trial balances of the Cleveland Manufacturing Company and its two subsidiaries. All three manufacture and sell, and there are some commercial transactions among them. On January 1, 1929, the Cleveland Manufacturing Company acquired the complete control of the subsidiaries by an exchange of stock, so there is no minority interest in either the Cincinnati or the Columbus Company. After adjusting any discrepancies in accounts current as they appear on the books of the three concerns, the trial balances are put in parallel columns on the working paper as in Figure 126. Note that two columns are provided for adjustments and two for eliminations. All the adjustments should preferably be made before the trial balances are brought together. In this case, however, there are three sets of adjustments necessary, those for depreciation, entry (b); those for the inventories, entry (a); and that to charge to surplus the dividends paid by the holding company, entry (c). Since a consolidated statement is being constructed, the amounts for the three companies are combined in making the adjustments, although there could have been three entries, one for each company. All the new inventories are credited to Cost of Sales because there is no need for a manufacturing account on this working paper. Similarly, the old inventories are not adjusted into the purchases, manufacturing, and cost of sales accounts, as they would be on actual books, but are merely carried over to the debit of the Cost of Sales columns. In the same way the depreciation of the three companies is lumped on the working paper, (b), the debit being to Manufacturing Expense. When the adjustments usually preliminary to closing the books have been made, the eliminations have to be entered on the working paper.

THE CLEVELAND MANUFACTURING COMPANY AND SUBSIDIARIES

ADJUSTED TRIAL BALANCES

December 31, 1929

	Cleveland Manufacturing Company	Cincinnati Manufacturing Company	Columbus Manufacturing Company
Debits			
Cash	$ 150,000.00	$ 45,000.00	$ 105,000.00
Accounts Receivable	650,000.00	210,000.00	400,000.00
Notes Receivable	300,000.00	50,000.00	50,000.00
Raw Materials Purchased	600,000.00	380,000.00	490,000.00
Labor	430,000.00	350,000.00	350,000.00
Manufacturing Expenses	220,000.00	170,000.00	160,000.00
Selling Expenses	100,000.00	60,000.00	100,000.00
Administrative Expenses	50,000.00	30,000.00	40,000.00
Interest Expense		5,000.00	5,000.00
Plant and Machinery	1,000,000.00	600,000.00	800,000.00
Dividends Paid	450,000.00	100,000.00	200,000.00
Capital Stock Owned			
Cincinnati Manufacturing Co.	1,000,000.00		
Columbus Manufacturing Co.	1,500,000.00		
Inventory, January 1, 1929			
Raw Materials	50,000.00	30,000.00	50,000.00
Goods in Process	30,000.00	50,000.00	60,000.00
Finished Stock	70,000.00	20,000.00	40,000.00
	$6,600,000.00	$2,100,000.00	$2,850,000.00
Credits			
Accounts Payable	$ 135,000.00	$ 105,000.00	$ 360,000.00
Notes Payable	50,000.00	95,000.00	90,000.00
Sales	1,500,000.00	1,100,000.00	1,200,000.00
Interest Earned	15,000.00		
Dividends Received	300,000.00		
Capital Stock	4,500,000.00	500,000.00	800,000.00
Surplus, January 1, 1929	100,000.00	300,000.00	400,000.00
	$6,600,000.00	$2,100,000.00	$2,850,000.00

Supplementary Information

1. Inventories December 31, 1929, were:

	Cleveland Co.	Cincinnati Co.	Columbus Co.
Raw Materials	$ 100,000.00	$ 25,000.00	$ 75,000.00
Goods in Process	90,000.00	40,000.00	40,000.00
Finished Stock	110,000.00	85,000.00	85,000.00

2. Provide 10% depreciation on Plant and Machinery.
3. The Cleveland Company holds notes of the Cincinnati Company, $95,000.00, and of the Columbus Company, $90,000.00. During the year the Cleveland Company has collected $5,000.00 interest from each of the subsidiaries.
4. Accounts Receivable of the Cleveland Company includes $200,000.00 due from the Columbus Company for materials shipped during the year. The closing inventory of the Columbus Company includes raw materials purchased from the Cleveland Company on which the latter made a profit of $25,000.00.
5. The combination was formed January 1, 1929. Investments are carried at cost.

FIGURE 125

WORKING PAPER FOR CONSOLIDATED STATEMENTS
CLEVELAND MANUFACTURING COMPANY AND SUBSIDIARIES
December 31, 1929

	Cleveland Mfg. Co.	Cincinnati Mfg. Co.	Columbus Mfg. Co.	Adjustments		Eliminations		Cost of Sales		Profit and Loss		Balance Sheet	
				Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Debits													
Cash	150,000.00	45,000.00	105,000.00									300,000.00	
Accounts Receivable	650,000.00	210,000.00	400,000.00				(r) 200,000.00					1,060,000.00	
Notes Receivable	300,000.00	50,000.00	50,000.00				(p) 185,000.00					215,000.00	
Raw Materials Purchased	600,000.00	380,000.00	490,000.00				(s) 200,000.00	1,270,000.00					
Labor	430,000.00	350,000.00	350,000.00					1,130,000.00					
Manufacturing Expenses	220,000.00	170,000.00	160,000.00	(b) 240,000.00				790,000.00					
Selling Expenses	100,000.00	60,000.00	100,000.00							260,000.00			
Administrative Expenses	50,000.00	30,000.00	40,000.00							120,000.00			
Interest Expense		5,000.00	5,000.00				(o) 10,000.00						
Plant and Machinery	1,000,000.00	600,000.00	800,000.00									2,400,000.00	
Dividends Paid	450,000.00	100,000.00	200,000.00		(c) 450,000.00		(t) 300,000.00						
Capital Stocks Owned													
Cincinnati Mfg. Co.	1,000,000.00						(u) 1,000,000.00						
Columbus Mfg. Co.	1,500,000.00						(v) 1,500,000.00						
Inventory, Jan. 1, 1929													
Raw Materials	50,000.00	30,000.00	50,000.00					130,000.00					
Goods in Process	30,000.00	50,000.00	60,000.00					140,000.00					
Finished Stocks	70,000.00	20,000.00	40,000.00					130,000.00					
Inventory, Dec. 31, 1929													
Raw Materials				(a) 200,000.00								200,000.00	
Goods in Process				(a) 170,000.00								170,000.00	
Finished Stocks				(a) 280,000.00								280,000.00	
Cost of Sales—Dec. 31, 1929													
Raw Materials					(a) 200,000.00	(q) 25,000.00			175,000.00				
Goods in Process					(a) 170,000.00				170,000.00				
Finished Stock					(a) 280,000.00				280,000.00				
Goodwill						(u) 200,000.00 (v) 300,000.00						500,000.00	
Totals	6,600,000.00	2,100,000.00	2,850,000.00										
Credits													
Accounts Payable	135,000.00	105,000.00	360,000.00			(r) 200,000.00							400,000.00
Notes Payable	50,000.00	95,000.00	90,000.00			(h) 185,000.00							50,000.00
Sales	1,500,000.00	1,100,000.00	1,200,000.00			(s) 200,000.00					3,600,000.00		
Interest Earned	15,000.00					(o) 10,000.00					5,000.00		
Dividends Received	300,000.00					(t) 300,000.00							
Capital Stock													
Cleveland Mfg. Co.	4,500,000.00												4,500,000.00
Cincinnati Mfg. Co.		500,000.00				(u) 500,000.00							
Columbus Mfg. Co.			800,000.00			(v) 800,000.00							
Surplus													
Cleveland Mfg. Co.	100,000.00			(c) 450,000.00								350,000.00	
Cincinnati Mfg. Co.		300,000.00				(u) 300,000.00							
Columbus Mfg. Co.			400,000.00			(v) 400,000.00							
Reserve for Depreciation of Plant and Machinery					(b) 240,000.00								240,000.00
Reserve for Unrealized Profits in Inventories							(q) 25,000.00						25,000.00
	6,600,000.00	2,100,000.00	2,850,000.00	1,340,000.00	1,340,000.00	3,420,000.00	3,420,000.00	3,590,000.00	625,000.00				
Cost of Sales—to Profit and Loss									2,965,000.00	2,965,000.00			
								3,590,000.00	3,590,000.00	3,345,000.00	3,605,000.00		
Net Profit—to Surplus										260,000.00			260,000.00
										3,605,000.00	3,605,000.00	5,475,000.00	5,475,000.00

Figure 126

In this case the eliminations involve not only intercompany relations at the balance sheet date, but intercompany transactions during the period. For example, the Columbus Company and the Cincinnati Company each paid to the Cleveland Company $5,000.00 interest, which is included in the latter's Interest Earned. This payment neither enriched nor impoverished the combination in any way, being merely a transaction between the constituents, and it is therefore eliminated by entry (o). Likewise, the sales of the Cleveland Company and the purchases of the Columbus Company include $200,000.00 each for intercompany sales of materials during the year, which is eliminated by entry (s); but on December 31 the Columbus Company's inventory of raw materials valued at cost to that firm, included $25,000.00 profit to the Cleveland Company, and in eliminating this profit the credit is, as in the cases considered in the preceding chapter, to a reserve for unrealized profit; but if the corresponding debit were to Surplus, the consolidated cost of manufacture would be incorrect. Therefore Cost of Sales is debited, entry (q) opposite Raw Materials, thus reducing the final inventory of raw materials that appears in the manufacturing statement by the $25,000.00 inflation.

The other eliminations are not difficult to understand, and will be explained briefly:

(p) eliminates the notes payable of the Cincinnati Company, $95,000.00, and of the Columbus Company, $90,000.00, held by the Cleveland Company.
(r) eliminates the $200,000.00 owed by the Columbus Company to the Cleveland Company for materials sold to the former by the latter.
(t) eliminates the dividends paid to the holding company by the two subsidiaries.
(u) eliminates the investment of the Cleveland Company in the Cincinnati Company, setting up a goodwill as at the date of acquisition of control.
(v) eliminates the investment of the holding company in the Columbus Company, setting up goodwill as at the date of acquisition.

When the adjustments and eliminations have been completed, the items as finally adjusted can be carried into the appropriate columns for the construction of statements, thus completing the work sheet. From the last six columns have been made the Consolidated Statements of Profit and Loss and of Cost of Manufacture and of Sales, and the Balance Sheet, as presented in Figures 127, 128, and 129.

If there is a minority holding in one of the subsidiaries, it will be

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THE CLEVELAND MANUFACTURING COMPANY AND SUBSIDIARIES
CONSOLIDATED STATEMENT OF PROFIT AND LOSS
January 1 to December 31, 1929

Sales		$3,600,000.00
Less: Cost of Sales		2,965,000.00
Gross Profit on Sales		$ 635,000.00
Deduct:		
Selling Expenses	$260,000.00	
Administrative Expenses	120,000.00	380,000.00
		$ 255,000.00
Add:		
Financial Income		5,000.00
Net Profit		$ 260,000.00

FIGURE 127

THE CLEVELAND MANUFACTURING COMPANY AND SUBSIDIARIES
CONSOLIDATED STATEMENT OF COST OF MANUFACTURE AND OF SALES
January 1 to December 31, 1929

Cost of Materials		
Inventory of Raw Materials, January 1	$ 130,000.00	
Purchases of Materials	1,270,000.00	
	$1,400,000.00	
Less: Inventory of Raw Materials, December 31	175,000.00	
Cost of Materials		$1,225,000.00
Labor		1,130,000.00
Manufacturing Expenses		790,000.00
		$3,145,000.00
Deduct: Increase of Inventory of Goods in Process		
Goods in Process, December 31	$ 170,000.00	
Goods in Process, January 1	140,000.00	30,000.00
Cost of Manufacture		$3,115,000.00
Deduct: Increase of Inventory of Finished Stock		
Finished Stock, December 31	$ 280,000.00	
Finished Stock, January 1	130,000.00	150,000.00
Cost of Sales		$2,965,000.00

FIGURE 128

THE CLEVELAND MANUFACTURING COMPANY AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEET
December 31, 1929

ASSETS			
Current Assets			
Cash		$ 300,000.00	
Accounts Receivable		1,060,000.00	
Notes Receivable		215,000.00	
Inventories			
Raw Materials	$ 200,000.00		
Less: Reserve for Unrealized Profits	25,000.00		
	$ 175,000.00		
Goods in Process	170,000.00		
Finished Stock	280,000.00	625,000.00	
Total Current Assets			$2,200,000.00
Fixed Assets			
Plant and Machinery		$2,400,000.00	
Less: Reserve for Depreciation		240,000.00	2,160,000.00
Intangible Assets			
Goodwill			500,000.00
Total Assets			$4,860,000.00
LIABILITIES			
Current Liabilities			
Accounts Payable		$ 400,000.00	
Notes Payable		50,000.00	
Total Liabilities			450,000.00
NET WORTH			
Capital Stock		$4,500,000.00	
Less: Deficit		90,000.00	
Total Net Worth			$4,410,000.00

FIGURE 129

necessary to determine the surplus of that subsidiary independently in order that the correct minority interest in the subsidiary as of the date of the balance sheet may be shown on the consolidated statement. The only record of this independent calculation that will appear on the work paper will be the adjustment setting apart the minority interest.

The Second Type of Working Paper.—The second type, represented in Figures 130 and 131, starts with the completed individual statements, makes the eliminations, and thus obtains the consolidated statements. The consolidated statement of cost of sales should be made

WORKING PAPER FOR
CONSOLIDATED STATEMENT OF COST OF MANUFACTURE AND OF SALES
CLEVELAND MANUFACTURING COMPANY AND SUBSIDIARIES
Year ending December 31, 1929

	Cleveland Mfg. Co.	Cincinnati Mfg. Co.	Columbus Mfg. Co.	Eliminations		Consolidated Statement
				Dr.	Cr.	
Inventory Raw Material Jan. 1	50,000.00	30,000.00	50,000.00			130,000.00
Purchases of Raw Materials	600,000.00	380,000.00	490,000.00		(s) 200,000.00	1,270,000.00
	650,000.00	410,000.00	540,000.00			1,400,000.00
Inventory Raw Material Dec. 31	100,000.00	25,000.00	75,000.00	(r) 25,000.00		175,000.00
Cost of Materials	550,000.00	385,000.00	465,000.00			1,225,000.00
Labor	430,000.00	350,000.00	350,000.00			1,130,000.00
Manufacturing Expenses	320,000.00	230,000.00	240,000.00			790,000.00
Totals	1,300,000.00	965,000.00	1,055,000.00			3,145,000.00
Inventory Goods in Process Jan. 1	30,000.00	50,000.00	60,000.00			140,000.00
Totals	1,330,000.00	1,015,000.00	1,115,000.00			3,285,000.00
Inventory Goods in Process Dec. 31	90,000.00	40,000.00	40,000.00			170,000.00
Cost of Manufacture	1,240,000.00	975,000.00	1,075,000.00			3,115,000.00
Inventory Finished Stock, Jan. 1	70,000.00	20,000.00	40,000.00			130,000.00
Totals	1,310,000.00	995,000.00	1,115,000.00			3,245,000.00
Inventory Finished Stock, Dec. 31	110,000.00	85,000.00	85,000.00			280,000.00
Cost of Sales	1,200,000.00	910,000.00	1,030,000.00			2,965,000.00

FIGURE 130

before that on profit and loss can be drawn up. In making the statement of cost of sales only two eliminating adjustments are necessary. Entry (r) eliminates the intercompany unrealized profit on raw material, and entry (s), the intercompany material sales. It should be noticed that there are no counter-entries on this working paper for either of these adjustments: the credit to counterbalance (r) and the debit to balance (s) both appear on the work sheet to consolidate the statements of profit and loss, Figure 131. The other adjustments on the latter are as follows:

(o) eliminates intercompany payments of interest.

(t) eliminates intercompany payments of dividends.

(m) eliminates the cost of the intercompany sales, $200,000.00 less the unrealized profit in inventories, $25,000.00. This deduction is the contra-credit for entry (r) in Figure 130.

It should be noticed that the additions and subtractions in the columns headed Consolidated Statement are made independently of the items in the other columns. The statements obtained from the working papers shown in Figures 130 and 131 would be identical with the exhibits made from such a statement as Figure 126.

The Consolidated Statement of Surplus.—A work sheet for consolidating the statements of surplus appears in Figure 132. It should be noted that the amount of the holding company's interest in each subsidiary surplus as at the time of acquisition has been eliminated, (u), (x). Minority interests in subsidiary surpluses would be eliminated. If the holding company takes on its books the profits and losses of the subsidiaries as they are reported, the entire surplus of each subsidiary should be eliminated. Intercompany profits and dividend payments are also eliminated; entry (y) is the intercompany profit in dividends, $300,000.00, and in inventories, $25,000.00, while entry (z) eliminates the payment of the dividends. It is interesting to note that, although each of the three companies shows a surplus in its balance sheet, the consolidated surplus has a debit balance; this results because of the eliminations of surplus of subsidiaries as purchased by the holding company when it acquired the stock.

It should be remarked in this connection that the construction of the consolidated surplus statement is simplified by the use of the appraisal to bring the book value of the stock of the subsidiaries at acquisition up to the cost of the investments. By distributing the excess of the investment over the several fixed assets of the subsidiary, the appraisal method obviates the necessity for the consolidated goodwill account in eliminating investment against the capital stock and the surplus of the subsidiary.

WORKING PAPER FOR
CONSOLIDATED STATEMENT OF PROFIT AND LOSS
CLEVELAND MANUFACTURING COMPANY AND SUBSIDIARIES
Year ending December 31, 1929

	Cleveland Mfg. Co.	Cincinnati Mfg. Co.	Columbus Mfg. Co.	Eliminations		Consolidated Statement
				Dr.	Cr.	
Sales	1,500,000.00	1,100,000.00	1,200,000.00	(s) 200,000.00		3,600,000.00
Cost of Sales	1,200,000.00	910,000.00	1,030,000.00		(m) 175,000.00	2,965,000.00
Gross Profit on Sales	300,000.00	190,000.00	170,000.00			635,000.00
Selling Expenses	100,000.00	60,000.00	100,000.00			260,000.00
Administrative Expense	50,000.00	30,000.00	40,000.00			120,000.00
	150,000.00	90,000.00	140,000.00			380,000.00
Profit from Operations	150,000.00	100,000.00	30,000.00			255,000.00
Interest Earned	15,000.00			(o) 10,000.00		5,000.00
Dividends Received	300,000.00			(t) 300,000.00		
Total	315,000.00					5,000.00
Total	465,000.00	100,000.00	30,000.00			260,000.00
Less Interest Expense		5,000.00	5,000.00		(o) 10,000.00	
Net Profit	465,000.00	95,000.00	25,000.00			260,000.00

FIGURE 131

Working Paper for
Consolidated Statement of Surplus
CLEVELAND MANUFACTURING COMPANY AND SUBSIDIARIES
January 1 to December 31, 1929

	Cleveland Mfg. Co.	Cincinnati Mfg. Co.	Columbus Mfg. Co.	Eliminations		Consolidated Statement
				Dr.	Cr.	
Balance January 1						
Cleveland Company	100,000.00					100,000.00
Cincinnati Company		300,000.00		(u) 300,000.00		
Columbus Company			400,000.00	(x) 400,000.00		
Add Profits	465,000.00	95,000.00	25,000.00	(y) 325,000.00		260,000.00
	565,000.00	395,000.00	425,000.00			360,000.00
Deduct Dividends	450,000.00	100,000.00	200,000.00		(z) 300,000.00	450,000.00
Balance December 31	115,000.00	295,000.00	225,000.00			90,000.00[a]

[a] Deficit.

Figure 132

Summary.—Consolidated statements of operation may be made by consolidation (1) direct from the adjusted complete trial balances of the constituent corporations, or (2) by consolidation of the finished operating statements of those companies.

If the complete trial balances furnish the starting point, adjustments and eliminations balance as to debit and credit. If finished statements are used in the consolidating work sheets, no equivalence of debit and credit eliminations need be expected on any one work sheet.

THE CLEVELAND MANUFACTURING COMPANY AND SUBSIDIARIES
Consolidated Statement of Surplus
January 1 to December 31, 1929

Balance January 1, 1929	$100,000.00
Consolidated Net Profits for 1929	260,000.00
Total	$360,000.00
Less: Dividends Paid	450,000.00
Deficit December 31, 1929	$ 90,000.00

Figure 133

In consolidating operating statements, it is necessary to eliminate all intercompany transactions and all unrealized profits in inventories.

Although the author believes it convenient to employ debit and credit elimination columns in consolidation work sheets, many accountants use only one column for their eliminations.

It should be borne in mind that the consolidation of many balance sheets or operating statements may be best accomplished by providing columns for items and lines for the several companies. The form of the work sheet, not the principle, is varied.

QUESTIONS

1. Is it easier to make all of the consolidated statements from one set of working papers or to prepare separate working papers for each statement? Why?
2. Are consolidated operating statements more or less complicated to make than the consolidated balance sheet? In what respects?
3. How would you treat minority interests in consolidating statements from the trial balances?
4. How would you treat minority interests in consolidating statements from the statements themselves?
5. According to Figure 132, each constituent company has a credit balance in its surplus account, and yet the combination balance sheet shows a deficit. How can you account for such a situation?

6. In preparing to make a consolidated statement of surplus, you learn that during the period there have been several adjustments to the surplus of one of the subsidiaries to correct errors in closing the books at the end of the preceding period. What effect will this have on your procedure?
7. What uniformities of accounting are necessary in order that consolidated statements may be constructed?
8. Suppose that there are minority interests in one or more subsidiaries, and that one of these subsidiaries has sold merchandise to another. How will you handle the elimination of the intercompany sales in preparing the consolidated operating statements?
9. Suppose one of the constituent companies has sold raw materials to another, which the purchasing company has put into process before the end of the period but which have not yet reached the finished state. How will you eliminate the unrealized intercompany profit in preparing consolidated operating statements?
10. Show how Figures 126 and 132 would be changed if the holding company had taken up on its books the profits of the subsidiaries as they were reported, and the subsidiaries had reported their profits previous to paying the dividends.

REFERENCES FOR SUPPLEMENTARY READING

See Chapter XXIV.

CHAPTER XXVII

INTEREST PROBLEMS AND ACCOUNTING

The Relation of Mathematics to Accounting.—Up to this point this text has been devoted to developing the principles involved in the solution of problems which frequently confront the accountant. These problems have dealt with preparing statements and schedules, valuing assets, insuring accuracy of the books, and making entries for the more intricate transactions and adjustments. It is impossible for one to attain the highest efficiency in meeting these accounting problems until he has mastered the mathematical computations involved. These calculations, except in the field of insurance, call for no mathematics beyond what is ordinarily taught as "College Algebra," although the ability to use logarithms may shorten certain processes. Therefore this concluding group of chapters on the mathematical tools of accounting should be easy reading for one who has not entirely forgotten his algebra, and even one untrained in formal mathematics can learn to use most of the formulæ.

This chapter will discuss interest calculations because they are most frequently encountered in practice. Chapter XXVIII will take up the uses of mathematics in valuation, and Chapter XXIX will develop the elements of graphic presentation.

Simple Interest.—Interest may be defined as payment for the use of borrowed funds; and in all interest calculations the principal, the time, and the rate must be considered. The rate is usually a percentage which, multiplied by the principal, yields the interest for one year. If i is the rate of interest for one year, P the principal, and t the time expressed in days, then I, the amount of interest, can be found thus:

$$I = \frac{itP}{365}, \text{ or } I = \frac{itP}{366}.$$

This formula may be applied to all computations of simple interest. In order to find the interest on $1,625.00 for 73 days at 5%, the following substitution is made in the formula:

$$I = \frac{.05 \times 73 \times \$1625}{365}, \text{ or}$$

$$I = \frac{5}{100} \times \frac{73}{365} \times \$1625 = \$16.25.$$

If cancellation is impossible, the quantities in the numerator and in the denominator can be multiplied at length. For example, if the rate is 7%, the time 71 days, and the principal $1,837.00, then

$$I = \frac{.07 \times 71 \times \$1,837.00}{365} = \frac{\$9,129.89}{365} = \$25.01.$$

Since the calculation of exact interest in this way involves time-taking multiplication and division, there have been numerous attempts to shorten the process, the first of which is known as the Six-per-cent Method. It is assumed that there are 360 days in the year; then

$$I = \frac{6}{100} \times \frac{t}{360} \times P, \text{ or}$$

$$I = \frac{tP}{6000}.$$

From this formula is derived the rule for computing interest at 6%; multiply the principal by the number of days and divide by 6,000.

This method is readily adapted to computing interest at any rate. If the interest at 6% is divided by 6, the quotient is interest at 1%; this can then be multiplied to obtain the amount at the actual rate. For example, if the principal is $1,234.56, the time 47 days, and the rate 5¼%, the computation would be:

$ 1234.56	the principal
47	times the number of days
8641.92	
49382.4	
6,000)$58024.32	divided by 6,000 gives
6)$9.67072	interest at 6%; divide by 6 to obtain
$1.611787	interest at 1%,
5¼	times 5¼ gives
$8.058935	
.402947	
$8.461882	interest at 5¼%.

The interest, therefore, would be $8.46. In practical work decimals should be carried out no further than is necessary to secure accuracy to the nearest cent in the result. Few tables are accurate beyond the nearest cent on a million dollars.

Sometimes it is possible to shorten the transition from the 6% rate to the actual rate by the use of fractions. Thus 5¼ is 21/4, and 6 is 24/4; therefore the interest at 5¼% is 21/24 or ⅞ of the interest at 6%.

If it is desired to find the exact interest on the basis of the 365-day year, it will be 72/73 of the interest found by the 6% method. For example, the exact interest at 5¼% on $1,234.56 for 47 days will be calculated thus:

73) $8.4619	divide interest on basis of 360-day year by 73;
− .1159	deduct; and the remainder is
$8.3460	interest on basis of 365-day year.

Thus the interest on the basis of the 365-day year will be $8.35.

In calculating interest, the United States government and the Federal Reserve Banks use the 365- or the 366-day year as a basis. Many banks and most commercial houses, however, base their computations on the 360-day year.

The second widely employed method of computing interest is the use of a table, such as that in Figure 134, from which the interest rate for any number of days corresponding to a given annual rate can be found. How this is done will be illustrated by the computation of interest on $1,234.56 at 5½% for 187 days. From the table for the 360-day basis is taken:

Interest on $1,000,000.00 at 5½%

for 100 days	$15,277.78
80 days	12,222.22
7 days	1,069.44
187 days	$28,569.44

Thus the interest on $1.00 for 187 days at 5½% will be $.02856944; and that on $1,234.56 will be the product of that principal multiplied by $.02856944, or $35.27.

In counting the days, it is customary to omit the day on which an instrument is dated but to include the one on which it falls due, or on which the interest is due. The counting of days is greatly facilitated by such a calendar as that in Figure 135. For example, suppose an instrument is dated June 12 and falls due the following November 13. The calendar shows that November 13 is the 317th day of the year, and that June 12 is the 163rd day. Since 317—163 is 154, the instrument has 154 days to run. In leap years February 29 will be the 60th day of the year and every subsequent day will be greater by one than that shown in the calendar. In computing interest on notes, banks always count the number of days. Thus a note dated January 17 to run four months will fall due on May 17, which is the 137th day of the year; therefore, this note has 120 days to run.

This calendar is useful in another way. If a note dated, say, March 3, has 172 days to run, its due date can be determined by adding 172

Interest on $1,000,000.00

360-day Basis

Days	4%	4½%	5%	5½%	6%	6½%	7%
1	111.11	125.00	138.89	152.78	166.67	180.56	194.44
2	222.22	250.00	277.78	305.56	333.33	361.11	388.89
3	333.33	375.00	416.67	458.33	500.00	541.67	583.33
4	444.44	500.00	555.56	611.11	666.67	722.22	777.78
5	555.56	625.00	694.44	763.89	833.33	902.78	972.22
6	666.67	750.00	833.33	916.67	1,000.00	1,083.33	1,166.67
7	777.78	875.00	972.22	1,069.44	1,166.67	1,263.89	1,361.11
8	888.89	1,000.00	1,111.11	1,222.22	1,333.33	1,444.44	1,555.56
9	1,000.00	1,125.00	1,250.00	1,375.00	1,500.00	1,625.00	1,750.00
10	1,111.11	1,250.00	1,388.89	1,527.78	1,666.67	1,805.56	1,944.44
20	2,222.22	2,500.00	2,777.78	3,055.56	3,333.33	3,611.11	3,888.89
30	3,333.33	3,750.00	4,166.67	4,583.33	5,000.00	5,416.67	5,833.33
40	4,444.44	5,000.00	5,555.56	6,111.11	6,666.67	7,222.22	7,777.78
50	5,555.56	6,250.00	6,944.44	7,638.89	8,333.33	9,027.78	9,722.22
60	6,666.67	7,500.00	8,333.33	9,166.67	10,000.00	10,833.33	11,666.67
70	7,777.78	8,750.00	9,722.22	10,694.44	11,666.67	12,638.89	13,611.11
80	8,888.89	10,000.00	11,111.11	12,222.22	13,333.33	14,444.44	15,555.56
90	10,000.00	11,250.00	12,500.00	13,750.00	15,000.00	16,250.00	17,500.00
100	11,111.11	12,500.00	13,888.89	15,277.78	16,666.67	18,055.56	19,444.44

365-day Basis

1	109.59	123.29	136.99	150.68	164.38	178.08	191.78
2	219.18	246.58	273.97	301.37	328.77	356.16	383.56
3	328.77	369.86	410.96	452.05	493.15	534.25	575.34
4	438.36	493.15	547.95	602.74	657.53	712.33	767.12
5	547.95	616.44	684.93	753.42	821.92	890.41	958.90
6	657.53	739.73	821.92	904.11	986.30	1,068.49	1,150.68
7	767.12	863.01	958.90	1,054.79	1,150.68	1,246.58	1,342.47
8	876.71	986.30	1,095.89	1,205.48	1,315.07	1,424.66	1,534.25
9	986.30	1,109.59	1,232.88	1,356.16	1,479.45	1,602.74	1,726.03
10	1,095.89	1,232.88	1,369.86	1,506.85	1,643.84	1,780.82	1,917.81
20	2,191.78	2,465.75	2,739.73	3,013.70	3,287.67	3,561.64	3,835.62
30	3,287.67	3,698.63	4,109.59	4,520.55	4,931.51	5,342.47	5,753.42
40	4,383.56	4,931.51	5,479.45	6,027.40	6,575.34	7,123.29	7,671.23
50	5,479.45	6,164.38	6,849.32	7,534.25	8,219.18	8,904.11	9,589.04
60	6,575.34	7,397.26	8,219.18	9,041.10	9,863.01	10,684.93	11,506.85
70	7,671.23	8,630.14	9,589.04	10,547.95	11,506.85	12,465.75	13,424.66
80	8,767.12	9,863.01	10,958.90	12,054.79	13,150.68	14,246.58	15,342.47
90	9,863.01	11,095.89	12,328.77	13,561.64	14,794.52	16,027.40	17,260.27
100	10,958.90	12,328.77	13,698.63	15,068.49	16,438.36	17,808.22	19,178.08

Figure 134

to 62, the number of March 3. Since 172+62 is 234, the note will mature on the 234th day of the year, or August 22.

Simple Discount.—Simple or bank discount is interest calculated in the same way as ordinary simple interest. In discounting a note or an acceptance, however, the bank gives to the borrower the face of the note minus the discount. Thus, according to Figure 134, if on the 365-day basis, a note for $1,000.00 is discounted at 6% for 90 days, the discount will be $14.79 and the borrower will actually receive $985.21. Thus the discount is 1.5012% of the actual sum loaned; the annual rate would be $^{365}/_{90}$ × 1.5012%, or 6.0882%. Hence, a discount entails on the borrower more interest in proportion

Calendar for Determining Number of Days between Given Dates

Day of 365-day Year[a]

Day of Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1	32	60	91	121	152	182	213	244	274	305	335
2	2	33	61	92	122	153	183	214	245	275	306	336
3	3	34	62	93	123	154	184	215	246	276	307	337
4	4	35	63	94	124	155	185	216	247	277	308	338
5	5	36	64	95	125	156	186	217	248	278	309	339
6	6	37	65	96	126	157	187	218	249	279	310	340
7	7	38	66	97	127	158	188	219	250	280	311	341
8	8	39	67	98	128	159	189	220	251	281	312	342
9	9	40	68	99	129	160	190	221	252	282	313	343
10	10	41	69	100	130	161	191	222	253	283	314	344
11	11	42	70	101	131	162	192	223	254	284	315	345
12	12	43	71	102	132	163	193	224	255	285	316	346
13	13	44	72	103	133	164	194	225	256	286	317	347
14	14	45	73	104	134	165	195	226	257	287	318	348
15	15	46	74	105	135	166	196	227	258	288	319	349
16	16	47	75	106	136	167	197	228	259	289	320	350
17	17	48	76	107	137	168	198	229	260	290	321	351
18	18	49	77	108	138	169	199	230	261	291	322	352
19	19	50	78	109	139	170	200	231	262	292	323	353
20	20	51	79	110	140	171	201	232	263	293	324	354
21	21	52	80	111	141	172	202	233	264	294	325	355
22	22	53	81	112	142	173	203	234	265	295	326	356
23	23	54	82	113	143	174	204	235	266	296	327	357
24	24	55	83	114	144	175	205	236	267	297	328	358
25	25	56	84	115	145	176	206	237	268	298	329	359
26	26	57	85	116	146	177	207	238	269	299	330	360
27	27	58	86	117	147	178	208	239	270	300	331	361
28	28	59	87	118	148	179	209	240	271	301	332	362
29	29		88	119	149	180	210	241	272	302	333	363
30	30		89	120	150	181	211	242	273	303	334	364
31	31		90		151		212	243		304		365

[a] In leap years February 29 is the 60th day and the number of each subsequent day is 1 greater than the number shown in this table.

Figure 135

to the size of his loan than he would pay if simple interest at the same rate were payable on the maturity of the loan.

The question sometimes arises as to how great should be the face of a note to settle a given debt if it is to be accepted at a discount. Let $5,000.00 be the debt to be settled by a 90-day note to be discounted at the rate of 6% per annum on a 365-day basis. The interest on $1.00 for 90 days at 6% is $.01479, and therefore the discounted value of $1.00 at the end of 90 days will be $.98521. If x is the face of the note to be given, then

$$\frac{x}{5{,}000} = \frac{1}{.98521}, \text{ or } x = \frac{5{,}000}{.98521}, \text{ or } x = \$5{,}075.06.$$

Thus, to liquidate a debt of $5,000.00, the face of this note would have to be $5,075.06. This may be proved as follows:

$5,075.06	face of note
75.06	less interest ($5,075.06 × .01479)
$5,000.00	equals amount of debt.

The formula for determining the face of such a note can be written as follows:

$$x = \frac{D}{1 - i^1}.$$

In this formula x is the face of the note, D is the debt to be settled, and i^1 is the interest rate expressed as a decimal for the period of the note. It should be remembered that if i is the annual interest rate, i^1 is found by multiplying i by

$$\frac{t}{365}\left(\text{by } \frac{t}{366}, \text{ or by } \frac{t}{360}\right).$$

Discount of Maturity Value.—Sometimes a note with running interest is discounted, and in this case the proper procedure is to compute the discount on the maturity value, which is the face of the note plus the interest from its date to its maturity. The calculation can be illustrated on the assumption that a 60-day note for $10,000.00, which calls for interest at the rate of 6% per annum, is discounted at the rate of 7% per annum 40 days before it falls due. The discount is found as follows:

$ 10,000.00	the face of the note
+ 98.63	plus interest at 6% for 60 days—365-day basis
$ 10,098.63	gives the maturity value, which,
× .0076712	multiplied by 7% per annum for 40 days,
$77.468610456	gives the discount.

The discount is $77.47, which leaves $10,021.16 due the holder.

This solution illustrates again the use of the simple interest table in determining interest rates for fractions of a year.

Another method of computing a note with running interest accepted by a bank is as follows:

$10,000.00	the face of the note
100.00	+ interest at 6% for 60 days—on 360-day basis
$10,100.00	= maturity value;
77.78	– interest at 7% for 40 days on $10,000.00—360-day basis
$10,022.22	= balance due holder.

When the interest calculation is made thus, the bank does not really discount the maturity value. It does allow the customer credit for interest on the note to its maturity, and charges him with interest on the face of the note from the day it is purchased by the bank to its maturity.

Either method of calculation can be used on both a 365-day and 360-day basis; but the second method based on the 360-day year is probably most common.

Partial Payments.—When partial payments are made on an interest-bearing debt there are two recognized methods of calculating the interest. If the obligation is expected to run more than one year, the United States Rule is often invoked. Under this rule each payment is first applied to the interest accrued up to the date of the payment, and any balance is used to reduce the principal. Thus, if $1,000.00 is owed, if the interest rate is 8%, and if quarterly payments of $200.00 are made, the history of the debt would be that shown in Figure 136.

REDUCTION OF DEBT BY PARTIAL PAYMENT

UNITED STATES RULE

Period End Quarter	Total Payment	Interest	Reduction of Principal	Unpaid Principal
0	—	—	—	$1,000.00
1	$ 200.00	$20.00	$ 180.00	820.00
2	200.00	16.40	183.60	636.40
3	200.00	12.73	187.27	449.13
4	200.00	8.98	191.02	258.11
5	200.00	5.16	194.84	63.27
6	64.54	1.27	63.27	
	$1,064.54	$64.54	$1,000.00	

FIGURE 136

Figure 137 illustrates the reduction of the same debt according to the so-called Merchants' Rule. Under this procedure simple interest is calculated on the entire principal from the date of the debt to the time of the final settlement, and interest is likewise calculated on each installment from the date of the payment to that of final settlement. The balance due at the final settlement is the principal plus interest thereon, minus the sum of the payments and the interest on each. It will be noticed that in the illustrations the debtor pays more interest under the United States Rule than under the Merchants' Rule. The United States Rule has the approval of the Supreme Court; the Merchants' Rule seems to be little used.

Reduction of Debt by Partial Payment
merchants' rule

Principal		$1,000.00	
Add Interest at 2% per period for 6 periods		120.00	
Total charges			$1,120.00
Payments			
End first period			
Principal installment	$200.00		
Interest, 2% per period, 5 periods	20.00	$ 220.00	
End second period			
Principal installment	$200.00		
Interest, 2% per period, 4 periods	16.00	216.00	
End third period			
Principal installment	$200.00		
Interest, 2% per period, 3 periods	12.00	212.00	
End fourth period			
Principal installment	$200.00		
Interest, 2% per period, 2 periods	8.00	208.00	
End fifth period			
Principal installment	$200.00		
Interest, 2% per period, 1 period	4.00	204.00	
			1,060.00
Due end sixth period			$ 60.00

Figure 137

Averaging Accounts.—Occasionally it is desired to find the average due date of all the items in an account, in order that one note can be made to represent the balance and to draw interest from that average date, or that the interest on the account may be computed from that average due date, or to fix a day when the entire balance can be considered as falling due. The average date of the account is determined as follows:

1. Select as a "focal date" some day previous to the due date of the first item due.
2. Multiply each open item by the number of days after the focal date it falls due.
3. Add separately those products involving credit items and those involving debit items.
4. Find the difference between these totals.
5. Divide this difference by the balance of the account.

If the sum of the products of debit items by days exceeds the sum of the products of credit items by days and the balance of the account is debit, or if the sum of the products of the credit items by days exceeds the sum of the products of the debit items by days and the balance of the account is credit, the quotient of the difference by the balance of the account will give the number of days by which the average due date is later than the focal date. Otherwise the quotient will represent the number of days by which it precedes the focal date.

A. B. Company

May 2	Inv. #1752, n. 60	1,000.00	May 15	Ret. Inv. #1752	100.00
May 30	Inv. #1830, n. 60	1,000.00	May 25	Mdse. Purchased, n. 60	1,000.00
June 6	Inv. #1931, n. 30	1,000.00			

An account current is represented in the account with A. B. Company. Reference to the calendar, Figure 135, discloses that the due dates of the invoices are as shown in Figure 138. June 30 has been selected as the focal date.

Calculation of Average Due Date

Date of Item	Particulars	Due Date	Days after Focal Date June 30	Amount		Product of Amount by days	
				Debit	Credit	Debit	Credit
May 2	Inv. #1752	July 1	1	$1,000.00		$ 1,000.00	
May 15	Ret. Inv. #1752	July 1	1		$ 100.00		$ 100.00
May 25	Mdse. Purchase	July 24	24		1,000.00		24,000.00
May 30	Inv. #1830	July 29	29	1,000.00		29,000.00	
June 6	Inv. #1931	July 6	6	1,000.00		6,000.00	
				$3,000.00	$1,100.00	$36,000.00	$24,100.00
					1,900.00		11,900.00
				$3,000.00	$3,000.00	$36,000.00	$36,000.00

11,900.00 ÷ 1,900.00 = 6.26

Figure 138

The return of goods or allowance on an invoice would be assigned the same due date as the invoice on which the adjustment was made. In the illustration the sum of the products of the debit items by days from the focal date exceeds by \$11,900.00 the sum of the products of the credit items by days from the focal date, while the account has a debit balance of \$1,900.00. Therefore, the average due date is 6 days later than June 30, that is July 6. Thus, if A. B. Company remitted \$1,900.00 to reach the creditor as of July 6, the account would be settled properly with due regard to credit terms.

Capitalization of an Income.—The sum which, if at interest at a given rate per period, would yield a given revenue, is the capitalized value of that income. The process of finding this sum is called "capitalizing the income," and is achieved by the formula:

$$P = \frac{R}{i},$$

in which R represents the annual revenue. This is necessarily true if

$$iP = R.$$

Hence, if the annual income is \$5,400.00 and 6% is the assumed interest rate or "rate of capitalization,"

$$P = \frac{\$5400.00}{.06} = \$90,000.00.$$

This formula is useful in fixing the value of goodwill or of a perpetual income of fixed periodic amount.

Compound Interest.—Such problems in simple interest as have been discussed involve no difficult principles. The calculation and application of compound interest, however, is more intricate; and in discussing it the following symbols will be used:

$P \equiv$ principal
$i \equiv$ interest rate per period
$n \equiv$ number of periods
$W \equiv$ present worth
$A \equiv$ amount of ordinary annuity
$A_a \equiv$ amount of annuity due
$A_w \equiv$ present value of ordinary annuity
$A_d \equiv$ present value of annuity due
$R \equiv$ periodic income
$C \equiv$ amount to which a given principal will increase at compound interest
$B \equiv$ value of a bond
$I \equiv$ compound interest
$D \equiv$ compound discount

The amount to which any sum of money will accumulate at compound interest in n periods is expressed by the formula,

$$C = P(1 + i)^n.$$

If, for example, P is \$1,000.00, i is 4%, and n is 3,

$$\begin{aligned} C &= \$1,000.00(1.00 + .04)^3 = \$1,000(1.04)^3 \\ &= \$1,000.00(1.124864) = \$1,124.86. \end{aligned}$$

The table in Figure 139 shows the growth of \$1.00 at varying rates of interest for various lengths of times, and is used as follows: The several columns give the amounts to which \$1.00 will accumulate in the number of periods in the column designated "n." The compound interest on \$1.00 will be the tabular value decreased by 1. Consequently, if it is desired to know the amount of \$652.00 in 10 periods at 2% per period, it can be found by consulting the column headed 2% in the line where n is 10—the value is 1.218994. If \$1.00 would amount to \$1.218994 in 10 periods, \$652.00 will amount to 652 times \$1.218994, or \$794.78.

Since the tabular value is the amount to which \$1.00 accumulates, that tabular value minus 1 is the compound interest. In the case just cited, the compound interest would be 1.218994 — 1, or .218994, and that on \$652.00 would be .218994 × 652.00, or \$142.78, which, added to the principal, \$652.00, gives \$794.78. Thus the table can be used to compute either the amount of a sum at interest, or the compound interest on the sum.

Simple Applications of Compound Interest.—Compound interest is most generally used in determining the amount to which a given sum will accumulate in a given period of time. If a man wants to open a savings account with \$1,000.00 at the birth of his child, to provide a fund for the child's college education to begin at his fifteenth birthday, and if the bank selected pays 4% per annum compounded semiannually, the deposit will bear interest at 2% each period for 30 periods. It is apparent from the table that \$1.00 at interest at 2% per period for 30 periods will amount to \$1.81136, and therefore \$1,000.00 will amount to \$1,811.36.

But suppose the father wishes to have \$3,000.00 at the child's fifteenth birthday, and wants to find out how much he should deposit at its birth. Since \$1.00 at compound interest would amount to \$1.81136 in 30 periods, he can solve his problem thus:

$$\frac{P}{\$3,000.00} = \frac{1}{1.81136}, \text{ or}$$

$$P = \frac{\$3,000.00}{1.81136}, \text{ or}$$

$$P = \$1,656.21.$$

The Amount of an Annuity.—An annuity is a series of equal payments received periodically by an individual. Its length may cover any period desired, and the payments may be of any specific number agreed upon, for life, or "perpetual." The annuity is becoming increasingly popular as a method of settling life insurance policies and personal endowments. If the first installment is due at once the income is an "annuity due"; if it is to be received at the close of one period, the income is an "ordinary annuity"; and if it is due after more than one period, the income is a "deferred annuity." In this section will be developed first the method of calculating the amount to which an ordinary annuity will accumulate by the time of the last installment if each receipt is placed at compound interest. The periodic income is represented by R, the number of payments by n, and the amount to which the annuity will accumulate by A. Then

AMOUNT OF $1.00 AT COMPOUND INTEREST

$x = (1 + i)^n$

End of Period n	2%	2½%	3%	3½%	4%
1.......	1.020000	1.025000	1.030000	1.035000	1.040000
2.......	1.040400	1.050625	1.060900	1.071225	1.081600
3.......	1.061208	1.076891	1.092727	1.108718	1.124864
4.......	1.082432	1.103813	1.125509	1.147523	1.169859
5.......	1.104081	1.131408	1.159274	1.187686	1.216653
6.......	1.126162	1.159693	1.194052	1.229255	1.265319
7.......	1.148686	1.188686	1.229874	1.272279	1.315932
8.......	1.171659	1.218403	1.266770	1.316809	1.368569
9.......	1.195093	1.248863	1.304773	1.362897	1.423312
10.......	1.218994	1.280085	1.343916	1.410599	1.480244
11.......	1.243374	1.312087	1.384234	1.459970	1.539454
12.......	1.268242	1.344889	1.425761	1.511069	1.601032
13.......	1.293607	1.378511	1.468534	1.563956	1.665074
14.......	1.319479	1.412974	1.512590	1.618695	1.731676
15.......	1.345868	1.448298	1.557967	1.675349	1.800944
16.......	1.372786	1.484506	1.604706	1.733986	1.872981
17.......	1.400241	1.521618	1.652848	1.794676	1.947901
18.......	1.428246	1.559659	1.702433	1.857489	2.025817
19.......	1.456811	1.598650	1.753506	1.922501	2.106849
20.......	1.485947	1.638616	1.806111	1.989789	2.191123
21.......	1.515666	1.679582	1.860295	2.059431	2.278768
22.......	1.545980	1.721571	1.916103	2.131512	2.369919
23.......	1.576899	1.764611	1.973587	2.206114	2.464716
24.......	1.608437	1.808726	2.032794	2.283328	2.563304
25.......	1.640606	1.853944	2.093778	2.363245	2.665836
26.......	1.673418	1.900293	2.156591	2.445959	2.772470
27.......	1.706887	1.947800	2.221289	2.531567	2.883369
28.......	1.741024	1.996495	2.287928	2.620172	2.998703
29.......	1.775845	2.046407	2.356566	2.711878	3.118652
30.......	1.811362	2.097568	2.427263	2.806794	3.243398
40.......	2.208039	2.685064	3.262038	3.959260	4.801021
50.......	2.691588	3.437109	4.383906	5.584927	7.106683
60.......	3.281031	4.399790	5.891603	7.878091	10.519627
70.......	3.999558	5.632103	7.917822	11.112825	15.571618
80.......	4.875439	7.209568	10.640891	15.675738	23.049799
90.......	5.943133	9.228856	14.300467	22.112176	34.119333
100.......	7.244646	11.813716	19.218632	31.191408	50.504948

FIGURE 139

$A = (1 + i)^{n-1}R$ (The first installment will be at compound interest $n - 1$ periods)

$+ (1 + i)^{n-2}R$ (The second installment will be at interest $n - 2$ periods)

$+ (1 + i)^{n-3}R$ (The third installment will be at interest $n - 3$ periods)

$+ \ldots$

$+ \ldots$

$+ (1 + i)R$ (The next to last installment will draw interest one period)

$+ \quad R$ (The last installment will not draw interest at all)

$$\text{or } A = R + (1 + i)R + (1 + i)^2R + \ldots + (1 + i)^{n-3}R + (1 + i)^{n-2}R + (1 + i)^{n-1}R.$$

This accumulation is evidently the sum of a geometric progression in which the ratio of increase is $(1 + i)$. It will be remembered that the sum of a geometric series is found by use of the formula,

$$S = \frac{a(r^n - 1)}{r - 1},$$

wherein S represents the sum of the series, a represents the first term, r represents the ratio of increase, and n is the number of terms. Substituting in this formula gives:

$$\text{(I)} \quad A = \frac{R[(1 + i)^n - 1]}{(1 + i) - 1}, \text{ or}$$

$$\text{(II)} \quad A = \frac{R[(1 + i)^n - 1]}{i}, \text{ or}$$

$$\text{(III)} \quad A = \frac{RI}{i}. \qquad \because \ I = (1 + i)^n - 1.$$

The second form of this equation is probably most usable in connection with interest tables, and its solution through the use of logarithms is simple.

Suppose that a man plans to deposit $500.00 in a savings bank every six months for ten years. The bank pays 4% per annum convertible (that is, compounded) semiannually. How much will he have accumulated at the end of the tenth year? Assume first that the opening

AMOUNT OF AN ORDINARY ANNUITY OF $1.00 PER PERIOD

$$x = \frac{(1 + i)^n - 1}{i}$$

End of Period n	2%	2½%	3%	3½%	4%
1.........	1.00000	1.00000	1.00000	1.00000	1.00000
2.........	2.02000	2.02500	2.03000	2.03500	2.04000
3.........	3.06040	3.07563	3.09090	3.10623	3.12160
4.........	4.12161	4.15252	4.18363	4.21494	4.24646
5.........	5.20404	5.25633	5.30914	5.36247	5.41632
6.........	6.30812	6.38774	6.46841	6.55015	6.63298
7.........	7.43428	7.54743	7.66246	7.77941	7.89829
8.........	8.58297	8.73612	8.89234	9.05169	9.21423
9.........	9.75463	9.95452	10.15911	10.36850	10.58280
10.........	10.94972	11.20338	11.46388	11.73139	12.00611
11.........	12.16872	12.48347	12.80780	13.14199	13.48635
12.........	13.41209	13.79555	14.19203	14.60196	15.02581
13.........	14.68033	15.14044	15.61779	16.11303	16.62684
14.........	15.97394	16.51895	17.08632	17.67699	18.29191
15.........	17.29342	17.93193	18.59891	19.29568	20.02359
16.........	18.63928	19.38022	20.15688	20.97103	21.82453
17.........	20.01207	20.86473	21.76159	22.70502	23.69751
18.........	21.41231	22.38635	23.41444	24.49969	25.64541
19.........	22.84056	23.94601	25.11687	26.35718	27.67123
20.........	24.29737	25.54466	26.87037	28.27968	29.77808
21.........	25.78332	27.18327	28.67649	30.26947	31.96920
22.........	27.29898	28.86286	30.53678	32.32890	34.24797
23.........	28.84496	30.58443	32.45288	34.46041	36.61789
24.........	30.42186	32.34904	34.42647	36.66653	39.08260
25.........	32.03030	34.15776	36.45926	38.94986	41.64591
26.........	33.67091	36.01171	38.55304	41.31310	44.31174
27.........	35.34433	37.91200	40.70963	43.75906	47.08421
28.........	37.05121	39.85980	42.93092	46.29063	49.96758
29.........	38.79223	41.85630	45.21885	48.91080	52.96629
30.........	40.56808	43.90270	47.57542	51.62268	56.08494
40.........	60.40199	67.40255	75.40126	84.55028	95.02552
50.........	84.57940	97.48435	112.79687	130.99791	152.66708

FIGURE 140

installment is to be made after six months and that the twentieth deposit will come at the close of the tenth year. Then

$$A = \frac{500.00[(1.02)^{20} - 1]}{.02},$$

$$A = \frac{500.00(1.48595 - 1)}{.02},$$

$$A = \frac{500.00(0.48595)}{.02},$$

$$A = \$12,148.75.$$

Thus the accumulation will be approximately $12,148.75. The word approximately is used because interest tables carried out to 5 decimal places do not give results correct to the nearest dime on $10,000.00, and because savings banks do not ordinarily pay interest on fractional parts of a dollar. This approximation, however, is accurate enough for all practical purposes. If there is available a table of annuity accumulations, such as Figure 140, the value of A may be found by multiplying R by the appropriate tabular value.

The assumption may be varied to suppose that the man will make the first of his twenty deposits immediately. In that case the accumulation would be $12,148.75 after the twentieth installment has been paid, 9½ years after the first deposit. This accumulation will draw interest for one additional period, thus:

$12,148.75	accumulation in 9½ years
242.98	interest at 2%
$12,391.73	accumulation at end of tenth year

The formula would be written

$$A_a = \frac{(1 + i)R[(1 + i)^n - 1]}{i},$$

wherein A_a is the amount of an annuity due, to the close of n periods, the deposit being made at the first of each period.

It may be wished to determine how much must be set aside periodically to accumulate to a certain amount at the time the last payment is made. Then, since

$$A = \frac{R[(1 + i)^n - 1]}{i},$$

$$R = \frac{iA}{(1 + i)^n - 1}.$$

This formula has many practical applications, such as the determination of the amount of the annual installments for a sinking fund, a building fund, or an expansion fund. For example, if $300,000.00 is desired at the end of thirty years, and if accumulation is on a 3% interest basis, the amount to be set aside at the end of each year is computed as follows:

$$R = \frac{(.03)(300,000)}{(1.03)^{30} - 1}$$

$$R = \frac{9,000}{(2.42726 - 1)}$$

$$R = \frac{9,000}{1.42726}$$

$$R = \$6,305.79$$

If an annuity table is available, R is the quotient of A by the tabular value for the amount of an annuity of $1.00.

Sometimes the interest is convertible more frequently than installments of the annuity come due, and in that case the effective interest rate must be calculated. Thus, if installments are made annually, but interest is compounded quarterly, i being the quarterly rate of interest, in any year a dollar will become $\$1 \times (1 + i)^4$. The effective interest rate, therefore, would be $(1 + i)^4 - 1$. In such cases the formula for the accumulation of an annuity would be:

$$A = \frac{R\{[1 + (1 + i)^4 - 1]^n - 1\}}{(1 + i)^4 - 1}, \text{ or}$$
$$A = \frac{R[(1 + i)^{4n} - 1]}{(1 + i)^4 - 1}.$$

This formula can be generalized by letting m represent the number of times the interest is compounded during one annuity period, thus:

$$A = \frac{R[(1 + i)^{mn} - 1]}{(1 + i)^m - 1}.$$

In such a case the value of R can be determined by means of the formula

$$R = \frac{[(1 + i)^m - 1]A}{(1 + i)^{mn} - 1}.$$

Since $(1 + i)^m - 1$ is usually an involved decimal, such as .08243 (if m is 4 and i is .02), the effective rate is seldom available in interest tables. Therefore, the formulæ for annuities when the interest is compounded more frequently than the installments are paid are usually solved by logarithms.

Compound Discount and Present Worth.—The amount which at interest compounded for a specified number of periods will equal a given principal is the present value of that principal the specified number of periods hence. Thus

$$W(1 + i)^n = P, \text{ or}$$
$$W = \frac{P}{(1 + i)^n}.$$

In Figure 141 are given the present values of $1.00 at various interest rates for various numbers of periods. The difference between P and W is known as the "compound discount."

$$D = P - \frac{P}{(1 + i)^n}.$$

If P is assumed to be $1.00,

$$W = \frac{1}{(1 + i)^n},$$
$$D = 1 - \frac{1}{(1 + i)^n}.$$

PRESENT VALUE OF $1.00

$$x = \frac{1}{(1 + i)^n}$$

n Periods Hence	2%	2½%	3%	3½%	4%
1	.980392	.975610	.970874	.966184	.961538
2	.961169	.951814	.942596	.933511	.924556
3	.942322	.928599	.915142	.901943	.888996
4	.923845	.905951	.888487	.871442	.854804
5	.905731	.883854	.862609	.841973	.821927
6	.887971	.862297	.837484	.813501	.790315
7	.870560	.841265	.813091	.785991	.759918
8	.853490	.820765	.789409	.759412	.730690
9	.836755	.800728	.766417	.733731	.702587
10	.820348	.781198	.744094	.708919	.675564
11	.804263	.762145	.722421	.684946	.649581
12	.788493	.743556	.701380	.661783	.624597
13	.773033	.725420	.680951	.639404	.600574
14	.757875	.707727	.661118	.617782	.577475
15	.743015	.690466	.641862	.596891	.555265
16	.728446	.673625	.623167	.576706	.533908
17	.714163	.657195	.605016	.557204	.513373
18	.700159	.641166	.587395	.538361	.493628
19	.686431	.625528	.570286	.520156	.474642
20	.672971	.610271	.553676	.502566	.456387
21	.659776	.595386	.537549	.485571	.438834
22	.646839	.580865	.521893	.469151	.421955
23	.634156	.566697	.506692	.453286	.405726
24	.621721	.552875	.491934	.437957	.390121
25	.609531	.539391	.477606	.423147	.375117
26	.597579	.526235	.463695	.408838	.360689
27	.585862	.513400	.450189	.395012	.346817
28	.574375	.500878	.437077	.381654	.333477
29	.563112	.488661	.424346	.368748	.320651
30	.552071	.476743	.411987	.356278	.308319
40	.452890	.372431	.306557	.252572	.208289
50	.371528	.290942	.228107	.179053	.140713
60	.304782	.227284	.169733	.126934	.095060
70	.250028	.177554	.126297	.089986	.064219
80	.205110	.138705	.093977	.063793	.043384
90	.168261	.108356	.069928	.045224	.029309
100	.138033	.084648	.052033	.032060	.019800

FIGURE 141

The present value of $3,000.00 thirty periods hence, if the interest rate is 2% per period, would be found thus:

.552071	present value of $1.00 30 periods hence from table,
×3,000.00	times $3,000.00
$1,656.21	gives present value of $3,000.00.

This is the same amount as was found on page 483 in determining how much must be set aside if interest at 4% per annum is converted semiannually, to amount to $3,000.00 in fifteen years.

The principal use of present worth is in the valuation of annuities. Since an annuity is a series of payments made periodically, each payment will be valued separately. In the case of the ordinary annuity the present value of the first installment will be:

$$\frac{R}{1+i};$$

of the second installment,

$$\frac{R}{(1+i)^2};$$

and so on until the last installment, which will have a present value of:

$$\frac{R}{(1+i)^n}.$$

Thus, the total value of the annuity will be represented by the formula:

$$A_w = \frac{R}{(1+i)} + \frac{R}{(1+i)^2} + \cdots + \frac{R}{(1+i)^{n-1}} + \frac{R}{(1+i)^n}.$$

This is plainly a geometric series with the ratio of increase $\frac{1}{(1+i)}$. Its value will be found by the formula for the sum of the series in a geometric progression,

$$S = \frac{a(r^n - 1)}{r - 1}, \text{ or}$$

$$S = a\left(\frac{1 - r^n}{1 - r}\right).$$

Substituting in this formula gives

$$A_w = \frac{R}{1+i}\left[\frac{1 - \left(\frac{1}{1+i}\right)^n}{1 - \frac{1}{1+i}}\right], \text{ or}$$

$$A_w = \frac{R}{1+i}\left[\frac{1 - \frac{1}{(1+i)^n}}{\frac{1+i-1}{1+i}}\right], \text{ or}$$

$$A_w = R\left\{\left[1 - \frac{1}{(1+i)^n}\right]\left(\frac{1+i}{i}\right)\left(\frac{1}{1+i}\right)\right\}, \text{ or}$$

$$\text{(I)} \quad A_w = R\left[1 - \frac{1}{(1+i)^n}\right]\frac{1}{i}, \text{ or}$$

$$\text{(II)} \quad A_w = \frac{RD}{i}.$$

If a table of present worths is at hand the form II is easily used, but form I is most usable when logarithms or merely a compound interest table is available. The application of form II can be illustrated by assuming that 20 payments of $100 each are to be made semiannually, the interest rate being 2% per period. In Figure 141 it appears that the present worth of $1.00 due 20 periods hence at 2% per period is .672971. Then

$$D = 1 - W,$$

$$D = 1 - 0.672971 = 0.327029,$$

$$A_w = \frac{RD}{i},$$

$$A_w = \frac{100(0.327029)}{.02},$$

$$A_w = \$1{,}635.15.$$

The significance of this calculation can be made clearer by the fact that if $1,635.15 were deposited with a bank which paid 2% interest on deposits each half year, $100.00 could be withdrawn by the depositor at the end of each six months for ten years.

The payments on an annuity due are each one period earlier than the corresponding payments on an ordinary annuity. Therefore, each payment in the annuity due has a present value of $(1 + i)$ times the corresponding payment in the ordinary annuity. Thus:

$$A_d = (1+i)A_w,$$

$$\text{(III)} \quad A_d = \frac{RD(1+i)}{i}, \text{ or}$$

$$\text{(IV)} \quad A_d = R\left[1 - \frac{1}{(1+i)^n}\right]\left(\frac{1+i}{i}\right).$$

The Deferred Annuity.—Sometimes the payments of an annuity do not begin for a considerable time after the contract is made. This is especially true with many life insurance company contracts whereby the client purchases an annuity to commence at some specified advanced age in the future. Until that time arrives the insurance company accumulates the deposit at interest. The value of such an annuity is that of an ordinary annuity discounted for the waiting period. Thus, if the deferment is for y periods,

$$A_{wy} = R\left[1 - \frac{1}{(1+i)^n}\right]\left[\frac{1}{i(1+i)^y}\right], \text{ or}$$

$$A_{wy} = \frac{RD}{i(1+i)^y}.$$

Bond Values.—The value of a bond consists of the discounted value of the principal plus the discounted value of the series of interest payments. But this series of interest payments is an annuity, and the bond can therefore be valued on the theory that it is an annuity plus a postponed future principal. The formula for the value of a bond is:

$$B = \frac{P}{(1+i)^n} + R\left[1 - \frac{1}{(1+i)^n}\right]\frac{1}{i}, \text{ or}$$

$$B = \frac{P}{(1+i)^n} + \frac{RD}{i}.$$

Suppose it is desired to find the value of a $1,000.00 bond with ten years to run and interest at 5% per annum payable semiannually when money is worth 4% per year. Then:

$$B = \frac{1{,}000.00}{(1.02)^{20}} + 25\left[1 - \frac{1}{(1.02)^{20}}\right]\frac{1}{.02}, \text{ or}$$

$$B = 1{,}000.00\left[\frac{1}{(1.02)^{20}}\right] + 25\left[1 - \frac{1}{(1.02)^{20}}\right]\frac{1}{.02}.$$

Substituting from the table of present worth,

$$B = 1{,}000.00(0.672971) + 25(1 - 0.672971)\frac{1}{.02}, \text{ or}$$

$$B = 672.97 + 408.79 = 1{,}081.76.$$

Consequently the bond, if purchased at $1,081.76 and held to maturity, will yield exactly 4% to its owner.

Summary.—The formulæ developed in this chapter are:

$I = \frac{itP}{365}.$	Simple interest.
$I = \frac{tP}{6{,}000}.$	Interest at 6% on 360-day year basis.
$P = \frac{R}{i}.$	Capitalization of an income.
$C = P(1+i)^n.$	Accumulation of sum of money at compound interest.
$A = \frac{R[(1+i)^n - 1]}{i} = \frac{RI}{i}.$	Amount to which an ordinary annuity will accumulate.
$A_a = \frac{(1+i)R[(1+i)^n - 1]}{i} = \frac{(1+i)\ RI}{i}.$	Amount to which an annuity due will accumulate.
$A = \frac{R[(1+i)^{mn} - 1]}{(1+i)^m - 1}.$	Amount to which an ordinary annuity will accumulate if interest is compounded m times each period.
$R = \frac{iA}{(1+i)^n - 1} = \frac{iA}{I}.$	Periodic deposit to accumulate A in ordinary annuity.
$R = \frac{[(1+i)^m - 1]A}{(1+i)^{mn} - 1}.$	Periodic deposit to accumulate A in ordinary annuity if interest is compounded m times in each period.
$W = \frac{P}{(1+i)^n}.$	Present worth.
$D = P - W.$	Compound discount.
$D = 1 - \frac{1}{(1+i)^n}.$	Compound discount on $1.00.
$A_w = R\left[1 - \frac{1}{(1+i)^n}\right]\frac{1}{i} = \frac{RD}{i}.$	Present value of ordinary annuity.
$A_d = R\left[1 - \frac{1}{(1+i)^n}\right]\left(\frac{1+i}{i}\right) = \frac{RD(1+i)}{i}.$	Present value of annuity due.
$A_{wy} = R\left[1 - \frac{1}{(1+i)^n}\right]\left[\frac{1}{i(1+i)^y}\right] = \frac{RD}{i(1+i)^y}.$	Present value of a deferred annuity.
$B = \frac{P}{(1+i)^n} + R\left[1 - \frac{1}{(1+i)^n}\right]\frac{1}{i}.$	Value of bond to yield i.
$B = P\frac{1}{(1+i)^n} + \frac{RD}{i}.$	Value of bond to yield i.

QUESTIONS

1. Discuss the relation between accounting and mathematics in more detail than is possible in the text.
2. Show how interest tables may be used to simplify calculations.
3. Cite examples of the use of the formula for compound interest.
4. In what ways is the formula for capitalization useful?
5. Work out the formula for the present value of a perpetual annuity. How does this differ from the formula for capitalization?

6. What practical present-day uses of the annuity can you describe?
7. How does the number of decimal places in an interest table affect the accuracy of calculations?
8. In what way does actual commercial interest differ from interest as calculated in the tables in this chapter? What is the significance of these differences?
9. Work out the formula for the value of a bond on the assumption that the yield rate equals the coupon rate. Explain your result.
10. Do you know any uses of deferred annuities?

SUGGESTIONS FOR SUPPLEMENTARY READING

Finney, H. A., *Principles of Accounting,* Prentice-Hall, Inc., New York, vol. i, chaps. xxix, xxx; vol. ii, chaps. xxxiii-xxxvii.

Moore, Justin H., *Handbook of Financial Mathematics,* Prentice-Hall, Inc., New York.

Paton, W. A., Editor, *Accountants' Handbook,* Ronald Press Company, New York, section 32.

Any text on the "Mathematics of Finance."

CHAPTER XXVIII

SOME APPLICATIONS OF MATHEMATICS TO VALUATION

Depreciation.—In the preceding chapter the interest problem was sketched and its relation to many accounting situations was indicated. This chapter will carry further the discussion of mathematical phases of accounting by pointing out some of the more important applications of mathematics to valuation. By all means the most important of the valuation problems is Depreciation because this phenomenon is omnipresent. It is now universally recognized by accountants that certain terms have become standardized; the terms used in connection with depreciation are:

> *Depreciation*—the expense due to the fact that a fixed asset will not last indefinitely. No matter whether the ultimate retirement will be caused by wear and tear, the action of the forces of nature, obsolescence, or inadequacy, the expense occasioned by the prospective total loss of the asset should be distributed equitably over the expected service life. The monthly or annual charges are posted to an account called Depreciation or Depreciation of ——. The contra credit is to Reserve for Depreciation. The depreciation accounts are closed regularly into Cost of Manufacture or into Profit and Loss.
>
> *Reserve for Depreciation*—represents through a credit balance the accumulated amounts which have been charged to depreciation accounts, less retirements which have been debited against the reserve account. The Reserve for Depreciation is a valuation account: it shows the difference between the cost of the fixed asset and its estimated value. The Accounting Committee of the National Association of Railway and Utility Commissioners has approved the term Retirement Reserve for this account, and their suggestion has been adopted by many of the state commissions.
>
> *Depreciation Fund or Replacement Fund*—an account which represents segregations of cash or of marketable securities for the avowed purpose of buying new fixed assets upon the retirement of the old. Some state laws require that public utility companies set aside a "Depreciation Reserve" in cash. This use of terms is misleading for only a Fund can be set aside in cash.

The only proper use of Depreciation Reserve is to designate an account with a credit balance—the valuation account. A replacement fund is ordinarily not necessary, provided a corporation regularly makes adequate charges to Depreciation and corresponding credits to Depreciation Reserve, thus preventing inflation of the surplus, and providing also that replacements are made from the current cash receipts.

This section, however, will deal with the measurement of depreciation rather than with its accounting aspects, which were considered in *Elementary Accounting*. In approaching the problem of measurement, it should be noted that there is no necessary connection between the depreciation in any given period and the decline in market value. A fixed asset is bought for use until it must be retired because of physical depreciation, obsolescence, or inadequacy. Costs of operation include the use of the asset but not the fluctuations of its resale value. However, the total depreciation over the useful life of the asset should equal the difference between its cost and its scrap value. Because scrap value is so uncertain it is usually best considered as zero.

In the development of depreciation formulæ, the symbols used in Chapter XXVII will appear, and, in addition, the following:

d ≡ depreciation of an asset per period
L ≡ total depreciation during life of asset
K ≡ cost of asset
S ≡ scrap value
U ≡ units of service or production estimated for the total life of the asset
u ≡ units of service or production by an asset in a period
H ≡ total working hours in estimated life of an asset
h ≡ working hours of asset in a period
x ≡ percentage of cost per period allowed for depreciation

Measurement by Straight-line Method.—In the symbols set forth in the preceding section,

$$L = K - S.$$

If the depreciation is reckoned as equal during each period in the life of the asset, then for any period

$$d = \frac{L}{n}, \text{ or}$$

$$d = \frac{K - S}{n}.$$

In the numerical illustrations, unless otherwise specified, it will be assumed that an asset cost $1,100.00 and is expected to last ten years and have a scrap value of $100.00. This will be called the "standard example." The scrap value is introduced, not because it is the most practical assumption, but because it enables the full content of each formula to be illustrated. Using these figures, the depreciation for any period by the straight-line method will be:

$$d = \frac{1,100 - 100}{10} = \frac{1,000}{10} = 100.$$

This uniformity of depreciation from period to period means that if the annual depreciation, the accumulated or accrued depreciation to any given date, or the residual or book value of the asset is plotted on ordinary Cartesian coördinates, the resulting line will be straight.

The Fixed Per Cent of Diminishing Value Method.—The fixed per cent of diminishing value method of measuring depreciation allows each period an amount which is a fixed per cent of the cost less the depreciation accumulated to the beginning of that period. If this fixed per cent is to reduce the book value from cost to estimated scrap in a given number of periods, it must be determined by the formula[1]

$$x = 1 - \sqrt[n]{\frac{S}{K}}.$$

The formula is indeterminate if S is zero. The application of this formula to the standard example is

$$x = 1 - \sqrt[10]{\frac{100}{1,100}},$$

$$x = 1 - \sqrt[10]{\frac{1}{11}},$$

$$x = 1 - .786791,$$

$$x = 0.213209 \text{ or } 21.3209\%.$$

On this basis the depreciation for the first year would be 21.3209% of $1,100.00, or $234.53, and the residual or book value at the end of the year would be $865.47. The depreciation the second year would be 21.3209% of this $865.47, or $184.53, and the residual value at the end of that year would be $680.94. Figure 144 presents the depreciation charges and residual values for later years.

This method of measuring depreciation is also called the Reducing Balance Method. If the actual scrap value is believed to be zero, the percentage of depreciation can be calculated on the assumption that this scrap value will be $1.00, which prevents the formula from having an indeterminate solution. Since the solution of the formula requires logarithms or some other device for extracting roots, this method is not practicable for most bookkeepers, and, moreover, there is no ground for believing that depreciation is measured any more correctly by this than by simpler methods. It will be noticed that very heavy charges for depreciation are made in the earlier periods. In view of the more costly upkeep in the later periods, some accountants advocate the use of this method to "even" the total costs of upkeep and depreciation over the life of the asset. Such "evening" is extremely rough.

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[1] For derivation of this formula see author's *Elementary Accounting*, p. 310.

The Sum of Service Periods Method.—The sum of service periods method is also called the sum of life periods method, the sum of years' digits method, or the changing per cent of cost less scrap method. This method is an attempt to accomplish what is done by the fixed per cent of diminishing value method without involving the extraction of a root. The procedure is to add the years or periods in the expected life of the asset at the beginning of each period of its existence, the total being the sum of the service periods. The depreciation in any one year is that fraction of the total depreciation which is represented by the expected life from the beginning of the particular period divided by the sum of the service periods.

In the standard example, the sum of the service periods is

$$10 + 9 + 8 + 7 + 6 + 5 + 4 + 3 + 2 + 1 = 55.$$

The expectation of life at the beginning of the first year of service is 10 periods. Therefore the depreciation for the first period would be

$$\frac{10}{55} \times \$1{,}000.00 = \$181.82.$$

This method of measuring depreciation seems to have no commanding advantages. It is occasionally reversed, making depreciation light the first year in order to book lower costs in the early life of a concern before it has fallen into its "permanent stride." This practice may be a deliberate attempt to misstate the results of operation.

Sinking Fund Method.—The sinking fund method measures depreciation by the periodic increments due to equal deposits and to interest thereon, by which a sinking fund would grow to a size sufficient to equal the total depreciation at the time the asset is expected to be retired.

The formula for the first period's depreciation is

$$R = \frac{iL}{(1 + i)^n - 1}, \text{ or}$$

$$R = \frac{iL}{I}.$$

This formula was developed in Chapter XXVII to find the amount of the deposit necessary periodically to accumulate a fixed sum in a given number of periods at a fixed rate of interest per period. Total depreciation, L, has been substituted for the amount of the annuity, A, as given in that formula.

In illustrating the application of this formula to the standard case in this chapter, it is assumed that the interest rate is 6%. Then

$$R = \frac{.06 \times 1{,}000.00}{(1.06)^{10} - 1},$$

$$R = \frac{60}{1.790848 - 1},$$

$$R = \frac{60}{.790848},$$

$$R = 75.87.$$

The charge to depreciation at the end of the first year, therefore, is $75.87, and in each year following it is this $75.87 plus interest on the amount in the depreciation reserve as at the beginning of the period. Thus, at the end of the second year the charge to depreciation will be $80.42. The method of calculating the depreciation each period is set forth in Figure 142.

DEPRECIATION OF ASSET BY SINKING FUND METHOD

$K = \$1{,}100.00.$ $S = \$100.00.$ $n = 10.$ $i = .06.$

Period n	R	Interest on depreciation accrued to first of period	Depreciation for period	Depreciation accrued to end of period
1	$75.87	$——	$75.87	$75.87
2	75.87	4.55	80.42	156.29
3	75.87	9.38	85.25	241.54
4	75.87	14.49	90.36	331.90
5	75.87	19.91	95.78	427.68
6	75.87	25.66	101.53	529.21
7	75.87	31.75	107.62	636.83
8	75.87	38.21	114.08	750.91
9	75.87	45.05	120.92	871.83
10	75.87	52.31	128.18	1000.01
	$758.70	$241.31	$1000.01	

FIGURE 142

There is no point in measuring depreciation by the sinking fund method unless a replacement fund is regularly set aside, for in that case there is an actual accumulation which is enhanced by real interest. Some states require utilities to measure depreciation by this method, and a few of these require a replacement fund.

The Annuity Method.—Some business men believe that each asset should be made to pay its own way by providing for its own replacement, in addition to the interest on the capital invested, and for that reason they compute depreciation by the so-called annuity method. Assuming some rate of interest, such as 6%, they first calculate the amount of the annual installment necessary to accumulate a sinking fund to replace the asset as in the sinking fund method. This amount is the credit to Reserve for Depreciation the first year, and each year following Reserve for Depreciation is credited with the sum of this annual sinking fund installment and interest on the Reserve for Depreciation as it stood at the first of that year. These credits to the reserve are thus identical with those made by the sinking fund method. The debits to Depreciation, however, are the amount of the credit to the reserve increased by interest on the book value of the asset at the first of the period.

At the close of the first year in the standard problem, Depreciation would be debited with $75.87 plus 6% of $1,100.00, or $141.87, while Reserve for Depreciation would be credited with $75.87. The balancing credit is to interest. The entry would therefore be:

Depreciation	$141.87	
Reserve for Depreciation		$75.87
Interest		66.00

Figure 143 shows how the calculation is made covering the life of the asset in the standard illustration. The depreciation entry at the close of the fifth year, for example, would be:

Depreciation	$141.87	
Reserve for Depreciation		$95.78
Interest		46.09

A study of this figure will reveal that if the same rate of interest is assumed for the sinking fund as is allowed on the residual value, the charge to Depreciation will be the same each year. During the life of the asset the charges to Depreciation exceed the Reserve for Depreciation or the total depreciation by the amount allowed for interest on the residual values.

This method of measuring depreciation makes the serious error of charging to an expense account a fictitious amount for interest and balancing this with a credit to interest for amounts which are not realized.

The Equal Annual Payments Method.—The equal annual payments method was devised by a committee of the American Society of Civil Engineers, whose purpose was to secure a uniform investment cost or an equalized depreciation charge. The calculation of depreciation by this method is similar to that by the annuity method, except that the interest rate on the residual value can be taken as different from that on the sinking fund.

DEPRECIATION OF ASSET BY ANNUITY METHOD

K = $1,100.00. S = $100.00. $n = 10.$ $i = .06.$

Period	Residual Value Beginning of Period	Interest on Residual Value	Depreciation by Sinking Fund Method	Amount Charged to Depreciation	Residual Value End of Period
1.......	$1,100.00	$66.00	$75.87	$141.87	$1,024.13
2.......	1,024.13	61.45	80.42	141.87	943.71
3.......	943.71	56.62	85.25	141.87	858.46
4.......	858.46	51.51	90.36	141.87	768.10
5.......	768.10	46.09	95.78	141.87	672.32
6.......	672.32	40.34	101.53	141.87	570.79
7.......	570.79	34.25	107.62	141.87	463.17
8.......	463.17	27.79	114.08	141.87	349.09
9.......	349.09	20.95	120.92	141.87	228.17
10.......	228.17	13.69	128.18	141.87	99.99
		$418.69	$1,000.01	$1,418.70	

FIGURE 143

Figure 144 compares the methods of measuring depreciation discussed up to this point. The column headed Annuity would serve for the equal annual payments method, provided the interest rate on the residual capital is assumed to be the same as that on the sinking fund. The equal annual payments method, like the annuity method, involves the fallacy of including unpaid interest in cost of production.

Units of Service and Working Hours Methods.—The units of service or the units of product method of measuring depreciation is based on the theory that the cost of the asset should be distributed over the periods of its life in proportion to the service rendered. Thus, the formula for the depreciation in any one period is

$$d = \frac{uL}{U}.$$

In the standard illustration L is $1,000.00. Assume that one hundred thousand service units are estimated as its life capacity (as 100,000 miles might be considered the limit of economical operation of a

COMPARISON OF METHODS OF MEASURING DEPRECIATION

$K = \$1,100.00. \quad S = \$100.00. \quad n = 10. \quad i = .06$

	Year	Straight Line	Fixed Per Cent Diminishing Value	Sum of Service Periods	Sinking Fund	Annuity
Annual Charge to Depreciation	1	100.00	234.53	181.82	75.87	141.87
	2	100.00	184.53	163.64	80.42	141.87
	3	100.00	145.18	145.45	85.25	141.87
	4	100.00	114.23	127.27	90.36	141.87
	5	100.00	89.87	109.09	95.78	141.87
	6	100.00	70.71	90.91	101.53	141.87
	7	100.00	55.64	72.73	107.62	141.87
	8	100.00	43.77	54.55	114.08	141.87
	9	100.00	34.44	36.36	120.92	141.87
	10	100.00	27.10	18.18	128.18	141.87
		1,000.00	1,000.00	1,000.00	1,000.01	1,418.70
Annual Credit to Reserve for Depreciation	1	100.00	234.53	181.82	75.87	75.87
	2	100.00	184.53	163.64	80.42	80.42
	3	100.00	145.18	145.45	85.25	85.25
	4	100.00	114.23	127.27	90.36	90.36
	5	100.00	89.87	109.09	95.78	95.78
	6	100.00	70.71	90.91	101.53	101.53
	7	100.00	55.64	72.73	107.62	107.62
	8	100.00	43.77	54.55	114.08	114.08
	9	100.00	34.44	36.36	120.92	120.92
	10	100.00	27.10	18.18	128.18	128.18
		1,000.00	1,000.00	1,000.00	1,000.01	1,000.01
Total Reserve for Depreciation to end of period	1	100.00	234.53	181.82	75.87	75.87
	2	200.00	419.06	345.46	156.29	156.29
	3	300.00	564.24	490.91	241.54	241.54
	4	400.00	678.47	618.18	331.90	331.90
	5	500.00	768.34	727.27	427.68	427.68
	6	600.00	839.05	818.18	529.21	529.21
	7	700.00	894.69	890.91	636.83	636.83
	8	800.00	938.46	945.46	750.91	750.91
	9	900.00	972.90	981.82	871.83	871.83
	10	1,000.00	1,000.00	1,000.00	1,000.01	1,000.01
Residual Value of Asset at end of period (Book Value)	1	1,000.00	865.47	918.18	1,024.13	1,024.13
	2	900.00	680.94	754.54	943.71	943.71
	3	800.00	535.76	609.09	858.46	858.46
	4	700.00	421.53	481.82	768.10	768.10
	5	600.00	331.66	372.73	672.32	672.32
	6	500.00	260.95	281.82	570.79	570.79
	7	400.00	205.31	209.09	463.17	463.17
	8	300.00	161.54	154.54	349.09	349.09
	9	200.00	127.10	118.18	228.17	228.17
	10	100.00	100.00	100.00	99.99	99.99

FIGURE 144

truck). Now if in any period the asset is used for 15,000 service units, for that period

$$d = \frac{15{,}000 \times \$1{,}000.00}{100{,}000},$$

$$d = \$150.00.$$

The units of service method of measuring depreciation is probably the best whenever it can be applied. However, it is difficult to meter the performance of most assets and, in addition, the life production capacity has not been accurately estimated except for a few types of equipment.

Similar to the service units method is the working hours method of measuring depreciation. The formula is

$$d = \frac{hL}{H}.$$

This formula also is of very limited application.

It is interesting to note, however, that the Income Tax Regulations permit a variation in depreciation allowances from period to period to take into account the effects of use which is more or less wearing than normal.

Composite Life Method.—It is sometimes desired to find a percentage of the cost of all assets to be allowed annually for depreciation, and this means that the rates of depreciation on the different types of assets must be averaged, due weight being attached to the investment in each type. Figure 145 illustrates the computation of such a composite rate of depreciation.

COMPUTATION OF COMPOSITE RATE OF DEPRECIATION

Class of Asset	Cost	Estimated Scrap	Total Depreciation	Estimated Life	Depreciation per Period
A..........	$75,000.00	$5,000.00	$70,000.00	35	$2,000.00
B..........	60,000.00	6,000.00	54,000.00	27	2,000.00
C..........	20,000.00	—	20,000.00	20	1,000.00
D..........	100,000.00	4,000.00	96,000.00	24	4,000.00
E..........	10,000.00	—	10,000.00	10	1,000.00
	$265,000.00	$15,000.00	$250,000.00		$10,000.00

10,000.00 ÷ 265,000.00 = .03773585.

FIGURE 145

This computation reveals that the annual depreciation is 3.77% of the cost of the assets. If the total of the Total Depreciation column is divided by the total of the Depreciation per Period column, the result, 25, is the average expectation of life of the assets expressed in periods.

The composite rate of depreciation cannot be calculated in advance for use over a term of years because the relative importance of the various classes of assets owned by any organization is apt to change very frequently. Without doubt, depreciation calculated separately for each class of assets, or even on individual assets, by the aid of a plant ledger is more accurate.

The proper function of the composite rate of depreciation is as a check on depreciation computed on individual fixed assets or on classes of assets.

The Appraisal Method.—The appraisal method consists of valuing assets at frequent intervals and charging depreciation with the diminution of value. If such an appraisal is based on market resale values, or if it becomes in any other way a function of market fluctuations, the depreciation for the period may have no relation to the proportionate expiration of the useful life of the asset, and therefore appraisals of resale values should have no place in the measurement of depreciation. However, if the appraisal is purely physical to ascertain the proportionate expiration of the asset's service life, it may prove an excellent method. Annual appraisals of all the assets of an industrial organization are costly, but there is a reasonable practice, somewhat widespread, of utilizing them for the valuation of tools. The Income Tax Regulations in certain cases allow farmers to determine depreciation on their livestock by the inventory method.

Summary of Depreciation Methods.—There are still other methods of estimating periodic depreciation, most of them worthless. Indeed, a consideration of the types of depreciation computation here described must convince one that a great deal of ingenuity has been wasted. The most sensible course probably is to adopt the straight-line method for practically all assets, although if production can be metered, the units of service method is excellent provided estimates of life in terms of productive units are available. For tools the appraisal method is usually found practicable. The sinking fund method is appropriate whenever a replacement fund actually is accumulated.

The entries for depreciation are familiar; in skeleton form they are as follows:

(a) Periodic allowance for depreciation

Depreciation	xxxx	
Reserve for Depreciation		xxxx

(b) Retirement of Asset

Reserve for Depreciation	xxxx	
Asset account		xxxx
To close reserve into asset account.		
Cash	xxxx	
Asset Account		xxxx
For scrap value realized.		
Profit and Loss on Sale of Fixed Assets	xxxx	
Asset Account		xxxx
To close out balance of asset account into a profit and loss account. (The debits and credits might be reversed.)		

It should be remembered that additions or improvements made to assets should be depreciated fully during the remaining life of those assets. The Treasury Department rules that in case it is found that the life has been wrongly estimated, the book value of that asset when the mistake is discovered should be spread over its remaining service life. In January, 1931, the Bureau of Internal Revenue published a preliminary report, *Depreciation Studies,* which presents estimates of the service lives of many types of assets in many different industries.

Bond Values.—The formula for the valuation of a bond as a permanent investment to yield a certain per cent, as stated in Chapter XXVII, is:

$$B = \frac{P}{(1+i)^n} + R\left[1 - \frac{1}{(1+i)^n}\right]\frac{1}{i} = \frac{P}{(1+i)^n} + \frac{RD}{i}.$$

This formula is ordinarily applied in such a way that n is the number of periods to the maturity date of the bond and P is its par value. However, some bonds are callable at a date earlier than their maturity, and in such cases it is customary for n to represent the number of periods from the date of purchase to the optional call date. The investor is expected to amortize the discount or premium by the optional call date, but from that time on the owner should hold the bonds at par even though the call price includes a premium. Of course this practice is based on the assumption that the bonds will be called—an assumption that may not be realized, but the most practical from the point of view of valuation.

COMPUTATION OF BID PRICE ON SERIAL BOND ISSUE

Class Maturity	Amount of class at par	Price per $1,000.00 to yield 5½%	Value
5 years	$ 100,000.00	$978.39981	$ 97,839.98
6 years	200,000.00	974.73949	194,947.90
7 years	300,000.00	971.27248	291,381.74
8 years	400,000.00	967.98857	387,195.43
	$1,000,000.00		$971,365.05

Priced either from bond tables or by use of bond value formula.

FIGURE 146

Sometimes bonds provide for payment at maturity at a higher price than par, but the coupon interest is a percentage of par; these are called "Premium Bonds." In using the formula for their valuation, P should be the contractual redemption price.

Bids for a serial issue of bonds are sometimes made on the basis of a certain yield to be secured. The bid price is calculated by valuing separately the bonds of each class and adding the prices obtained. For example, suppose that there is an issue consisting of four classes: $100,000.00 due at 5 years, $200,000.00 at 6 years, $300,000.00 at 7 years, and $400,000.00 at 8 years. They carry coupons for 5% annual interest, payable semiannually. The bidder wishes to realize 5½%, but only bids for the entire lot as a unit will be considered. His computation will be made as in Figure 146.

If the bidder contemplates selling the issue to clients to yield them 5½%, he can calculate his sale prices to them as in Figure 146, and then deduct his margin. If he needs a margin of 2% of the par of the issue, his bid will then be:

$971,365.05	price to yield 5½%
−20,000.00	less 2% of par
$951,365.05	bid price.

The converse of the problem is somewhat as follows: An issue of $3,000,000 5% bonds was sold for $3,180,000. These bonds come due in three equal classes at intervals of one year, the first class maturing in 3 years. How should the premium be amortized by the straight-line method?

Obviously the solution depends upon the distribution of the premium of $180,000.00 among the three classes of bonds. This distribution should be such that the annual amortization on all classes will be equal. Suppose *z* is the annual amortization on any class, and, consequently, on each other class. Then

Class 1 will be amortized	$3z$
Class 2 will be amortized	$4z$
Class 3 will be amortized	$5z$
The total amortization	$12z = \$180{,}000.00,$
and	$z = 15{,}000.00.$

The annual amortization, therefore, will be as follows:

year 1	3 classes at	$15,000.00	$ 45,000.00
year 2	3 classes at	$15,000.00	45,000.00
year 3	3 classes at	$15,000.00	45,000.00
year 4	2 classes at	$15,000.00	30,000.00
year 5	1 class at	$15,000.00	15,000.00
			$180,000.00

Should the classes be of different sizes, *z* may be taken as the annual amortization of the smallest class, and multiples of *z* will represent the amortization per year on the other classes. A slightly different device is known as "the bonds outstanding method." The par value of the bonds unredeemed at the beginning of each period is set down in a column and the column is added. The amortization for any period is found by multiplying together the par value of the bonds outstanding at the beginning of that period and the whole of the original premium or discount. The product is divided by the total of the column.

Of course this distribution of straight-line amortization is not as accurate as a compound interest amortization would be. To obtain the exact amortization, the approximate yield of the middle class of the bonds can be computed, assuming tentatively that the price of that class is

$$\$1{,}000{,}000.00 + 4z = \$1{,}060{,}000.00.$$

Reference to a bond table will show that 4-year 5% bonds priced at 106 will yield approximately 3.38%.

If, then, the three classes were priced to yield 3.38%, the sales price would be found by interpolating in the values given in the bond table, thus:

Class 1, 3 years $1,000,000.00 par	$1,045,850.38
Class 2, 4 years 1,000,000.00 par	1,060,137.67
Class 3, 5 years 1,000,000.00 par	1,073,954.07
	$3,179,942.12

This price is too low, so the assumed yield must have been a little too high. If the yield is assumed at 3.37%, the price would be

Class 1, 3 years $1,000,000.00 par	$1,046,141.25
Class 2, 4 years 1,000,000.00 par	1,060,522.02
Class 3, 5 years 1,000,000.00 par	1,074,430.19
	$3,181,093.46

But this price is a little too high, and the actual yield is therefore between 3.37 and 3.38%. A close approximation is achieved by interpolation, thus:

A.	Price of issue to yield 3.37%	$3,181,093.46
	Price of issue to yield 3.38%	3,179,942.12
	Difference	$ 1,151.34
B.	Price to yield 3.37%	$3,181,093.46
	Actual price	3,180,000.00
	Difference	$ 1,093.46

C. Actual yield $= 3.37 + \dfrac{1{,}093.46}{1{,}151.34}\,(.01) = 3.3795\%.$

Although this yield is not exact, it is a close approximation.

Leaseholds.—Perhaps the best method of valuing a leasehold is to find the present worth of an annuity equal to the difference between the annual economic rent and the contractual rent. The symbol R in the formula for the present value of an annuity accordingly signifies the difference between actual annual rental value and actual rent. If the rentals are payable in advance, the formula for the annuity due would be most usable:

$$A_d = R\left[1 - \frac{1}{(1+i)^n}\right]\left(\frac{1+i}{i}\right).$$

If the contract calls for rents to increase with time, the value of the leasehold would be the sum of the values of several annuities, each of which, except the first, would be deferred. The periodic installments of each annuity would be interpreted as the difference between the present rental value and the contractual rent for the term of that cash rent.

Insurance Settlements.—When a loss covered by insurance in whole or in part is sustained, Depreciation is brought up to the date of the loss; the depreciation reserve is then closed into the asset account, and, finally, the asset account is closed into some such appropriately named account as Fire Loss or Marine Loss. This special loss account is credited and the insurance company is debited with whatever indemnity is allowed by the insurer, and, if some of the assets are sold, this account is credited with the sales price. Finally, at the end of the period, the special loss account is closed into Profit and Loss. Variations of this procedure are of course frequently found.

The mathematical problem usually arises in connection with the interpretation of a so-called "Coinsurance Clause." The standard coinsurance clause reads:

> "This company shall not be liable for any greater proportion of any loss or damage to property described herein than the sum hereby insured bears to . . . per centum of the actual cash value of said property at the time such loss shall happen."

In interpreting this clause, the following symbols will be used:

$T \equiv$ the cash value of the property insured at the time of the fire
$t \equiv$ the "per centum of the actual cash value of said property" as set forth in the coinsurance clause
$F \equiv$ the face of the insurance policy
$Q \equiv$ the amount of the loss
$V \equiv$ the liability of the insurer.

Then

$$V = \frac{FQ}{tT}.$$

This formula may be applied to a concrete problem by assuming that the coinsurance clause calls for insuring 80% (t) of the cash value of the property insured, which is $100,000.00. The actual face of the policy (F) is only $60,000.00. If the damage is $50,000.00, the liability of the insurance company will be

$$V = \frac{60{,}000.00 \times 50{,}000.00}{0.80 \times 100{,}000.00}, \text{ or}$$
$$V = \$37{,}500.00.$$

On the other hand, if the insured had taken out a policy for $80,000.00, he would have been indemnified to the full extent of the loss.

$$V = \frac{80{,}000.00 \times 50{,}000.00}{0.80 \times 100{,}000.00},$$
$$V = \$50{,}000.00.$$

The coinsurance clause is widely used by fire insurance companies to induce their clients to carry adequate coverage.

Reciprocal Ownership.—One of the questions that arises frequently in connection with consolidations and mergers is the basis of the exchange of shares, so that all of the stockholders may be treated equitably. This question is particularly vexing when there is reciprocal ownership of shares among the corporations concerned. In order to illustrate one method of attacking this problem, it is assumed that a new corporation, X, is to issue 100,000 shares of no-par-value stock in exchange for the stock of the corporations A, B, and C which are in the hands of the public. The balance sheets of the old companies are as follows:

	A	B	C
Assets			
Investments			
Stock of B, 10%	$ 75,000.00		
Stock of C, 25%	115,000.00		
Stock of A, 5%		$ 100,000.00	
Stock of C, 10%		45,000.00	
Stock of A, 10%			$120,000.00
Stock of B, 5%			40,000.00
Other Assets	2,510,000.00	955,000.00	690,000.00
	$2,700,000.00	$1,100,000.00	$850,000.00
Equities			
Sundry Liabilities	$ 700,000.00	$ 300,000.00	$400,000.00
Capital Stock (Par value $100.00 per share)	1,000,000.00	600,000.00	500,000.00
Surplus	1,000,000.00	200,000.00	50,000.00 Dr.
	$2,700,000.00	$1,100,000.00	$850,000.00

It is evident that, if these three corporations were combined in one organization, the actual assets would be the sum of the items in the line "Other Assets," $4,155,000.00; the actual liabilities would be $1,400,000.00; and the net worth would be $2,755,000.00, consisting of the par value of the stock in the hands of the public, $1,685,000.00, and a surplus of $1,070,000.00. It is also apparent that the true surplus of each of the companies depends upon the value set upon the stock it holds, or upon the true surpluses of each of the other companies. The task, then, is to determine the true surplus of each of the three companies.

The first step in determining the true surpluses is the adjustment of each investment account to par value of the stock held. This results in the following revised balance sheets:

	A	B	C
Assets			
Investments			
Stock of B, 10%	$ 60,000.00		
Stock of C, 25%	125,000.00		
Stock of A, 5%		$ 50,000.00	
Stock of C, 10%		50,000.00	
Stock of A, 10%			$100,000.00
Stock of B, 5%			30,000.00
Other Assets	2,510,000.00	955,000.00	690,000.00
	$2,695,000.00	$1,055,000.00	$820,000.00
Equities			
Sundry Liabilities	$ 700,000.00	$ 300,000.00	$400,000.00
Capital Stock	1,000,000.00	600,000.00	500,000.00
Surplus	995,000.00	155,000.00	80,000.00 Dr.
	$2,695,000.00	$1,055,000.00	$820,000.00

These balance sheets are now in shape for the determination of the true surpluses in view of the intercompany holdings of stock. Let *a* represent the true surplus of A, *b* of B, and *c* of C. Then, because each company has an interest in the surplus of each other proportional to the stock owned, the following equations may be formed:

$$\begin{aligned} a &= 995{,}000 + .10b + .25c \\ b &= 155{,}000 + .05a + .10c \\ c &= -80{,}000 + .10a + .05b \end{aligned}$$

The solution of these simultaneous equations gives

$$\begin{aligned} a &= 1{,}024{,}172.84 \\ b &= 209{,}497.86 \\ c &= 32{,}892.18 \end{aligned}$$

On the basis of these true values of the surpluses the book values of the stock may be computed; the book values will be: A stock, $202.417284 per share, B stock, $134.91631, and C stock, $106.57844.

Since the stock of X is to be apportioned to the stockholders of the three original companies, the distribution may be calculated as follows:

	Shares of Stock in Hands of Investors	Book Value per Share	Total Book Value of Stock in Hands of Investors	Per Cent of Total Book Value	Shares of X Stock	Shares of X Stock per Share Old Stock
A	8,500	$202.417284	$1,720,546.91	62.45179	62,452	7.347
B	5,100	134.91631	688,073.18	24.97543	24,975	4.897
C	3,250	106.57844	346,379.91	12.57278	12,573	3.869
	16,850		$2,755,000.00	100.00000	100,000	

The stocks of corporations which have holdings in each other may be valued as follows:

1. Adjust the balance sheet of each corporation to show its holdings of stock of the other corporations at par.
2. Form simultaneous equations by setting the true surplus of each corporation (an unknown) equal to its surplus as adjusted, plus its proportionate share of the surplus (an unknown) of each of the companies in which it holds stock.
3. Solve these simultaneous equations for the true surpluses.
4. Compute the book values of the shares of the several corporations on the basis of the true surpluses.

Computing a Bonus.—The method of computing a bonus to a managing partner, as developed in Chapter XIX, is comparatively simple because of the freedom of the partnership from the federal income tax. When a corporation offers a bonus to its general manager as part of his compensation, this reward is a deductible expense in computing the taxable income. The bonus, moreover, may be calculated as a per cent of the profits remaining after the deduction of both the tax and the bonus. To illustrate the method of determining a bonus, it will be assumed that the president of a corporation is to be compensated with a regular salary plus 4 per cent of the excess of the net profit over 6 per cent of the invested capital. The net profit is defined as the taxable net income decreased by the income tax, the bonus having been considered an expense; the invested capital is $400,000.00; the profit before deducting the bonus or the tax is $60,000.00. It is further assumed that the tax rate is 12 per cent.

For this calculation, let B represent the bonus, and T the tax. It is possible, then, to formulate two simultaneous equations:

I. $B = .04(60{,}000 - B - T - 24{,}000)$.
II. $T = .12(60{,}000 - B)$, or
$T = 7{,}200 - .12B$.

If the value of T is substituted in equation I, the result is:

III. $B = .04(60{,}000 - B - 7{,}200 + .12B - 24{,}000)$, or
$B = .04(28{,}800 - .88B)$, or
$B = 1{,}112.83$.

By substituting this value in equation II it is developed that T is \$7,066.46. These values satisfy the conditions, so the bonus will be \$1,112.83.

Thus, when it is necessary to determine a bonus which is a per cent of the profits after deducting the bonus and the income tax, it is generally wise to formulate simultaneous equations which express the relationships accurately, to solve these equations, and then to test the values so found for the bonus and the tax.

Summary.—The purpose of this chapter has been to show some of the applications of mathematics to valuation problems. Other applications have appeared at various points in the text, particularly in Chapters III, IV, and V.

In thinking of mathematics in connection with accounting, it is well for the student to bear in mind that all valuations are approximations of the truth and that a formula which gives results to cents or mills may convey the impression of an accuracy which does not exist. The calculations should, of course, be correct, but a computed estimate is still an estimate.

Another pitfall is the desire to build up ingenious mathematical processes without regard to the facts. The annuity and the equal annual payments methods of measuring depreciation are examples of the use of figures having no factual basis.

On the other hand, the application of mathematical principles, no matter how involved, to satisfactory data may lead to results of the utmost usefulness. The classic illustration of this in the field of economics is the calculation of life insurance premiums on the primary basis of mortality tables which have grown out of years of experience.

No attempt has been made in this text to describe the actuarial processes of computing insurance rates. The accountant who has insurance companies as clients should familiarize himself with the general principles of actuarial mathematics, even though professional actuaries will compute the rates and reserves.

The more mathematics an accountant knows, the better; but he ought never to permit abstract analysis to stand between him and facts.

QUESTIONS

1. How do you account for the widespread error of calling what is really a depreciation reserve a depreciation fund, and *vice versa*?
2. How do you account for the multiplicity of formulæ for measuring depreciation?
3. Investigate and report on the methods of measuring depreciation imposed by the utilities commission of your state.
4. Select any method of measuring depreciation described in the text; enumerate all its advantages, and point out all of its defects.
5. List all the assets you can think of, to which the units of service method of measuring depreciation can be applied successfully.
6. Describe the process of determining the price to be bid for a lot of serial bonds if they are to be purchased at a price to assure a definite yield.
7. Does the formula for valuing bonds on a yield basis apply to preferred stock?
8. Investigate and report on the purpose and use of the coinsurance clause in fire insurance policies.
9. What objections are there to valuing leaseholds on the basis of the formula presented in this chapter?
10. Describe premium bonds, and tell why they are issued.

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CHAPTER XXIX

ELEMENTS OF GRAPHIC PRESENTATION

Nature of Graphic Presentation.—Accounting and statistical data are often so overwhelming in quantity as to be almost incomprehensible. If the facts can be reduced to simple lines or charts, understanding may be easier. For that reason "charting" is being increasingly resorted to in the attempt to make the stockholders or the general public grasp certain fundamentals.

Graphs have other uses. If certain data can be reduced to a line, it may be possible to deduce from that line the law governing the relations of the data. Furthermore, if the relationship of two variables can be expressed by an equation, the curve representing that equation can be plotted on coordinate paper and the values read from the graph. Finally, a mode of procedure can by their use be reduced to a diagram which gives an understanding of the sequence of steps or of operations.

In this chapter the attempt will be made to describe some of the simple graphic methods which are available to those whose acquaintance with mathematics is limited.

The Columnar or Bar Chart.—One of the simplest and most effective methods of comparing data is the columnar or bar chart. An elementary form of this type of presentation is shown in Figure 147. Its merits in this illustration are extreme simplicity and clearness. However, it would have been better had the title of this figure been more specific. There might well have been a definite indication of whether the word "telephones" refers only to instruments in service, to instruments in use by paying customers, or to all instruments owned, whether in service or disconnected. Moreover, it would be well to indicate whether the number of telephones was taken as at the beginning, the middle, or the end of the fiscal year, or whether this number was an average. Thus, while the mechanical principles on which this bar chart was constructed are correctly applied, the exact nature of the data should have been described more precisely, which perhaps may have been done in the accompanying text.

A somewhat more involved use of the bar chart appears in Figure 148. In this case the zero or base line is vertical, and the comparisons are to be made between horizontal lengths. The complication arises from the attempt to analyze the exports as well as to show their total volume in long tons. This analysis is presented by varying the "cross-hatching" of the different sections of each bar to symbolize the several classes of commodities exported. The general effect of such a chart is a rather vivid conception of the relative importance of the different ports. A cursory study brings out the classes of goods handled at each point of shipment, and an intensive examination reveals the approximate quantity of each class exported through each port. However, no amount of study of this chart will afford an accurate measure of the volume of any type of export from any harbor, and for this reason every such chart should be accompanied by a tabular statement of the quantities represented. Within its limitation as to accuracy of the detailed impression conveyed, such a bar chart as Figure 148 is very effective.

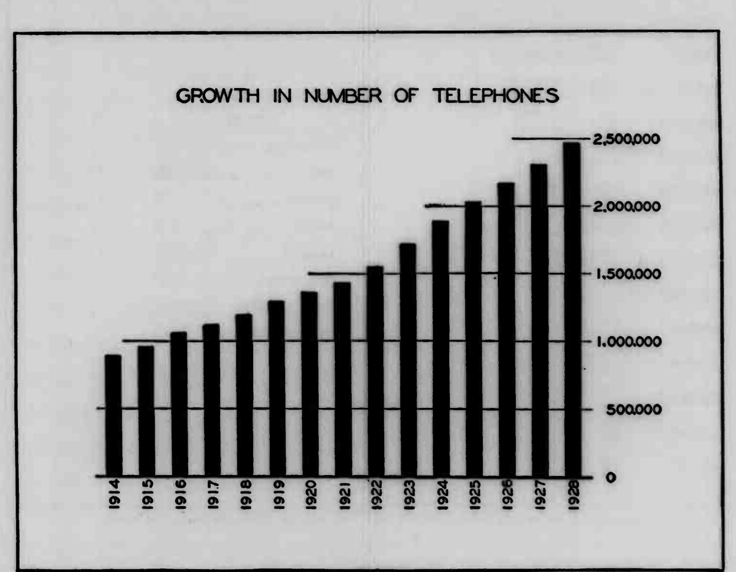
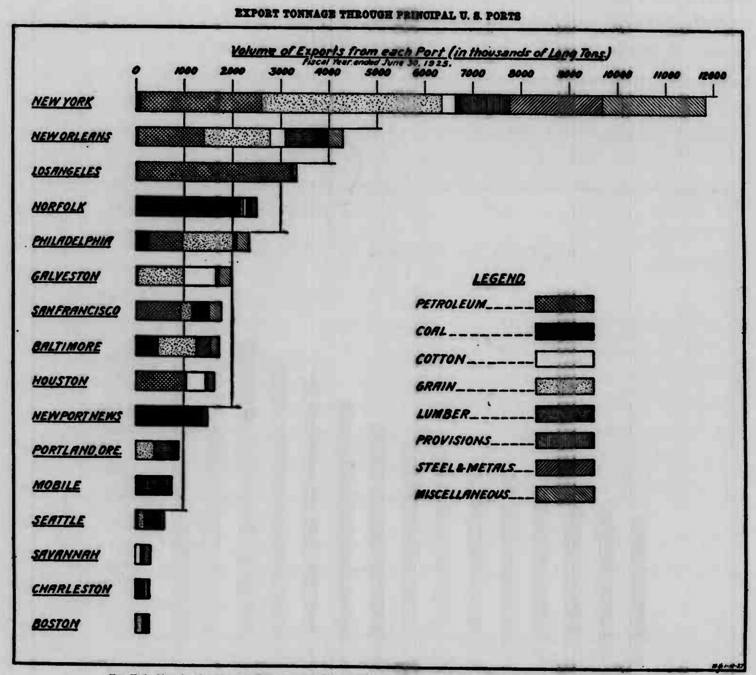


FIGURE 147
(From the *Annual Report* of the New York Telephone Company)

A second variation of the bar chart appears in Figure 149, which attempts to convey a more accurate impression of the distribution of shipments from the various ports according to types of commodities. There is no doubt but that this presentation affords a good general idea of the relative importances of the various classes of commodities at each port, but it is difficult to read any of the percentages except those of the commodities next to the base line or at the left of the 100-percent line.



EXPORT TONNAGE THROUGH PRINCIPAL U. S. PORTS

New York ships abroad nearly 12,000,000 tons of freight, or more than the combined export tonnage of the three next largest ports.

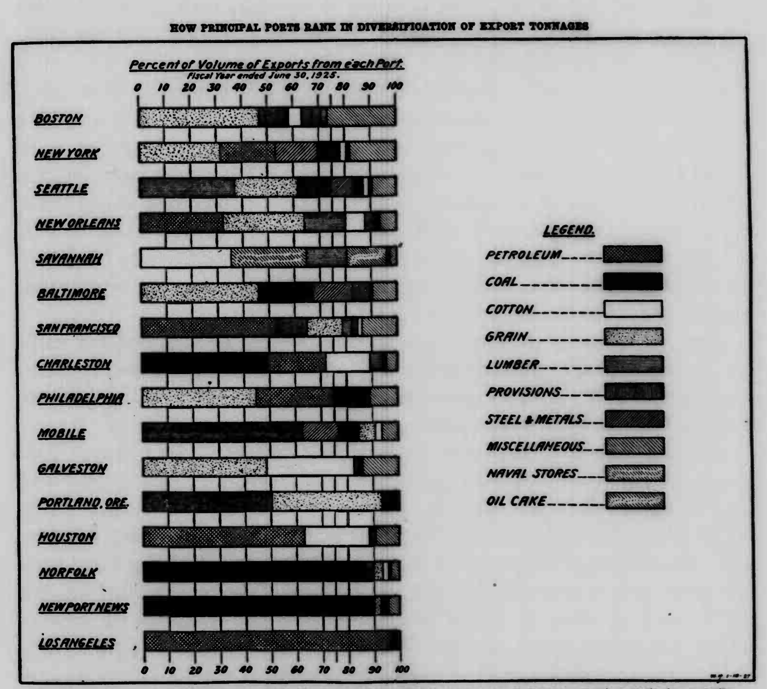
FIGURE 148
(From the *Annual Report* of the Port of New York Authority)

There are many ingenious variations of the bar chart, but these three examples will illustrate its possibilities. In constructing these bar charts the following principles should be observed:

1. Draw a base line either at the left or the bottom of the chart proper.
2. Put the names or symbols of the bars either to the left of the base line or below it, leaving enough space between the symbols and the base line to prevent confusing the symbol with the bar.
3. Make the bars exactly proportional in length to the quantities they represent.
4. Make the bars uniform as to width.

---

5. Either provide a convenient scale for the interpretation of the various lengths of the bars, or put *in* each bar a figure representing the quantity.
6. Do not make the bars wide enough to distract attention from their length.
7. Adopt a scale which can be carried out on the space available.



HOW PRINCIPAL PORTS RANK IN DIVERSIFICATION OF EXPORT TONNAGES

New York's export supremacy is solidly based upon a wide diversity of commodities in contrast to the ports whose export tonnages are made up largely of one commodity.

FIGURE 149
(From the *Annual Report* of the Port of New York Authority)

8. Adopt a scale large enough to show moderate variation by these bars.
9. See that the title is clear, concise, accurate, and sufficiently complete to give the reader a very definite idea of the data presented.
10. Cross-hatching may be used with caution, and colors can also be used.
11. Avoid showing too many different things on one chart.

12. As a practical device, a metric ruler or a strip of coordinate or cross-section paper will greatly facilitate laying out the bars.

Angles, Areas, and Pictures.—A very popular form of graphic presentation is the sector diagram or "pie diagram," like the one in Figure 150. It is particularly common as a representation of the way in which money is spent, probably because the circle resembles the form of the dollar; but aside from this, the device has no special value because the eye is not accustomed to comparing angles. For example, it might not be realized, from this particular figure, that the sector "Road Construction" occupies 188°, although it is obviously over 180°.

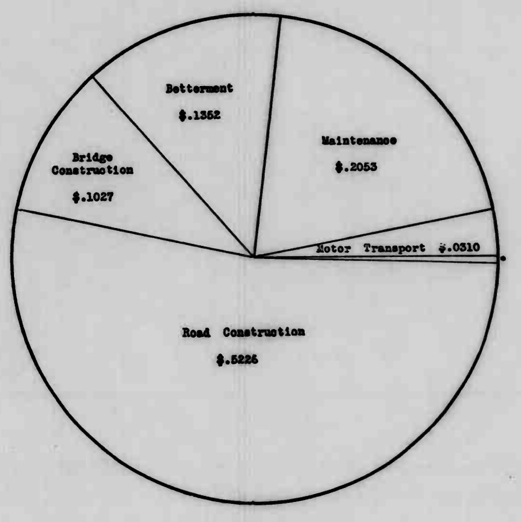
A second objection to this type of diagram is that there is difficulty in distinguishing some of the sectors. In Figure 150 one sector is so small (1.15°) that there is no room to designate it on its own surface. Descriptive material outside the bounding arc of the circle is not beautiful, but if it is put in a footnote some of its effectiveness is lost. Thus this type of diagram is not practicable if the data are to be shown in many or very small divisions; and for these reasons the accountant should avoid the sector diagram entirely.

The use of areas to represent quantities should be shunned for similar reasons. The eye is not ordinarily trained to estimate and to compare areas, and therefore presentation of data by this means is more likely to delude than to enlighten.

Probably the most misleading of graphic devices is the picture. Suppose, for example, that the number of employees in 1920 was 150, and 300 in 1930—the labor force has doubled in ten years. Some one wishing to bring out this fact with striking clarity draws two men in overalls. He pictures the 1920 man as, say, 2 inches tall, and the 1930 man 4 inches tall, double the height of the first. The impression on the reader is a growth of about 700%, because the volumes of similar solids are proportional to the cubes of their homologous dimensions, and people are accustomed to thinking of men as solids. Every ex-boy knows that a six-foot man is almost twice as big as one five feet tall. Thus he thinks of the 1920 man as a five-footer, while the 1930 man is a ten-foot giant. If pictures are to be used to vivify values, they should be drawn so that their homologous dimensions are proportional to the cube roots of the quantities represented.

Maps or Cartograms.—Some facts are strikingly and accurately presented by the use of maps or cartograms. Figure 151 is an excellent illustration of the possibility of showing geographical distribution by means of dots on a map, for the reader sees at once where farms are numerous. Such a cartogram means more to the average person than would a list of states with the number of farms in each. Moreover, it goes further than such a list because it shows roughly where the nonarable land lies within each state. The reader can notice, for instance, the little bare spot in New York where the Adirondacks are, and the contrasts between the fertile strips of the central valley and the seacoast of California and its mountains and deserts. In making this map it was necessary to locate the dots by townships as well as by states.

Maps can be planned so that such dots will show the location of prospects, customers, competitors, plants owned, sources of supply, or, indeed, any locations, provided the data are available.



*Administration $.0032

FIGURE 150
How the State Highway Commission Spent its Dollar in 1930

A second type of map is shown in Figure 152. However, it must not be assumed from this map that some of the mountains and the deserts are covered with factories. The cross-hatching indicates the total value of manufactures in each state, but fails to disclose their intense concentration in limited metropolitan areas. Nevertheless, such a map does help to visualize the fact that manufacture is highly concentrated in certain states.

Great ingenuity may be displayed in preparing maps, as is seen from Figure 153. Different symbols on the face of this map stand for different types of privately owned electric plants, and the courses of most of the transmission lines are indicated. This map, when considered in connection with the two others which were also prepared by Dr. Malott, vividly demonstrates a remarkable decrease in Wisconsin of electric light and power stations which generate all their own current.

Cartograms may be used very effectively to convey an impression of geographic distribution, and most stationers can furnish outline maps of the United States and of their own states. In making a map the following suggestions should be considered:

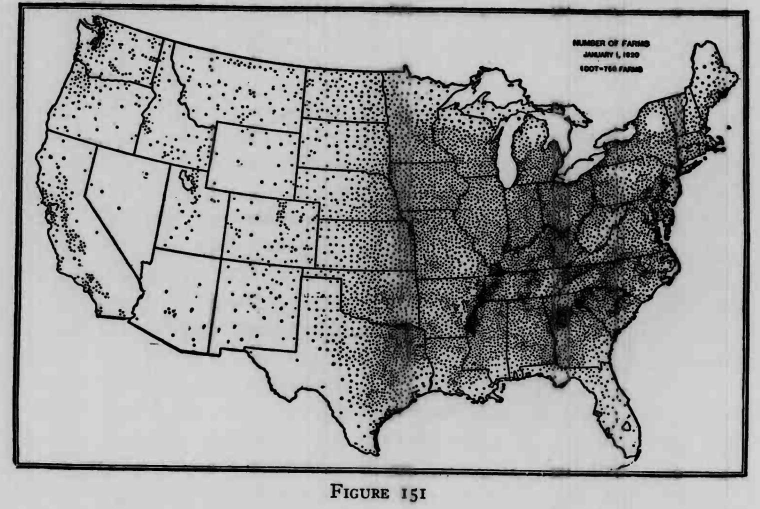

NUMBER OF FARMS
JANUARY 1, 1920
1 DOT = 750 FARMS

FIGURE 151

1. The title should be appropriate, and should describe precisely what the map is meant to show.
2. Spots, symbols, or cross-hatching should be put in with great care in order that they may be in correct locations.
3. In making spot maps each spot should stand for a number of units of the item whose distribution is to be represented. The number of units thus represented should be such that the map is shaded from localities of great density of occurrence to those of rare occurrence, but spots should not be too close together.
4. If cross-hatching is to be used, the scheme of marking should be fairly simple. It is best to have the cross-hatching vary from light to dark as the item increases in size or density.
5. If symbols of different classes of items are necessary, they should be comparatively few and easily distinguished from one another, for otherwise the map will be confusing.
6. If a considerable number of items is to be presented, it is better to make several different maps than to overload one.
7. Remember that the map does not afford the opportunity for accurate comparisons of quantitative data, but permits classification within rather broad limits.

Graphs Proper.—Whenever a relationship exists between two variables, it can be shown by a line diagram or graph proper. If the equation of the relationship is known, the line can be plotted as accurately as possible with the instruments at hand; but if it is not known, separate points can be located and connected by a broken or smoothly curved line. One of the variables often encountered in business graphing is time, and the other is some business quantity, such as sales, volume of output, ratio of earnings to capital, or of fixed charges to gross income. However, it is sometimes profitable to plot the relationship between pairs of business values, such as the number of calls made by salesmen and the number of sales, the state of the weather and the

1. VALUE OF MANUFACTURED PRODUCTS, BY STATES: 1919.

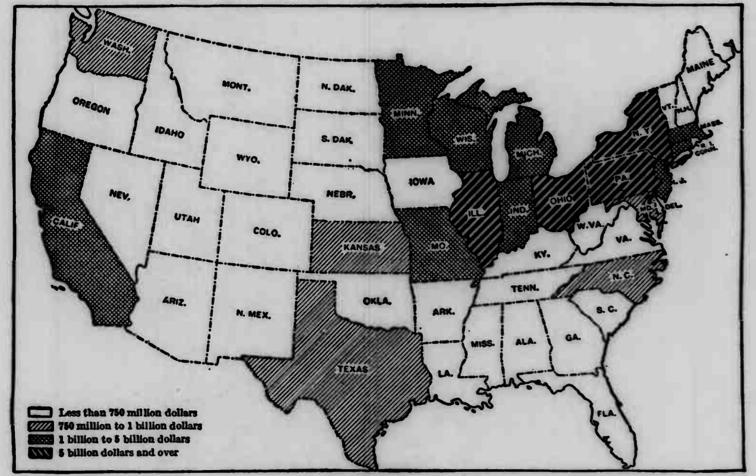

WASH.
OREGON
CALIF.
NEV.
IDAHO
MONT.
WYO.
UTAH
ARIZ.
COLO.
N. MEX.
N. DAK.
S. DAK.
NEBR.
KANSAS
OKLA.
TEXAS
MINN.
IOWA
MO.
ARK.
LA.
WIS.
ILL.
MICH.
IND.
OHIO
KY.
TENN.
MISS.
ALA.
GA.
FLA.
W.VA.
VA.
N.C.
S.C.
PA.
N.Y.
MAINE
□ Less than 750 million dollars
▨ 750 million to 1 billion dollars
▩ 1 billion to 5 billion dollars
▧ 5 billion dollars and over

FIGURE 152
A Cross-hatched Map
(From the *Statistical Atlas of the United States*)

volume of sales, or the speed of workers and the percentage of pieces spoiled.

The most usual form of paper for plotting curves is that on which the lines run perpendicularly to each other. The lines in each set are parallel and spaced equally, and form many squares by the intersection of these lines, or "coordinates." It is sometimes convenient if every fifth, tenth, or twelfth line is heavier than the others. Figures 154 to 157 are plotted on these Cartesian coordinates.

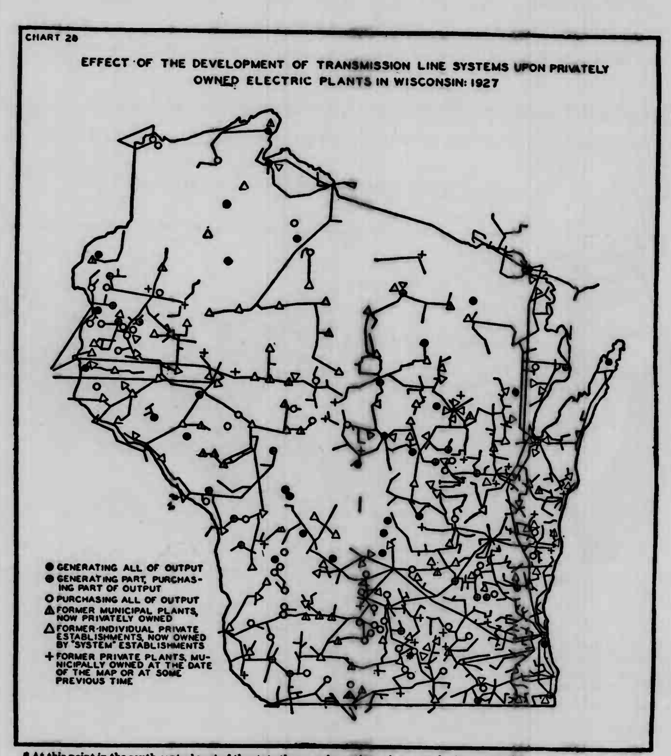


CHART 28
EFFECT OF THE DEVELOPMENT OF TRANSMISSION LINE SYSTEMS UPON PRIVATELY OWNED ELECTRIC PLANTS IN WISCONSIN: 1927
● GENERATING ALL OF OUTPUT
⊕ GENERATING PART, PURCHASING PART OF OUTPUT
○ PURCHASING ALL OF OUTPUT
▲ FORMER MUNICIPAL PLANTS, NOW PRIVATELY OWNED
△ FORMER INDIVIDUAL PRIVATE ESTABLISHMENTS, NOW OWNED BY "SYSTEM" ESTABLISHMENTS
+ FORMER PRIVATE PLANTS, MUNICIPALLY OWNED AT THE DATE OF THE MAP OR AT SOME PREVIOUS TIME

* At this point in the south central part of the state there are four other private purchasing companies.

FIGURE 153

(From *Forces Affecting Municipally Owned Electric Plants in Wisconsin*, by O. H. Malott.) Reprinted by permission of the Institute for Economic Research.

Figure 154 is a graph of the annual charges to depreciation as calculated in the standard problem of Chapter XXVIII and summarized in Figure 144. Figure 155 presents the residual values at the end of each

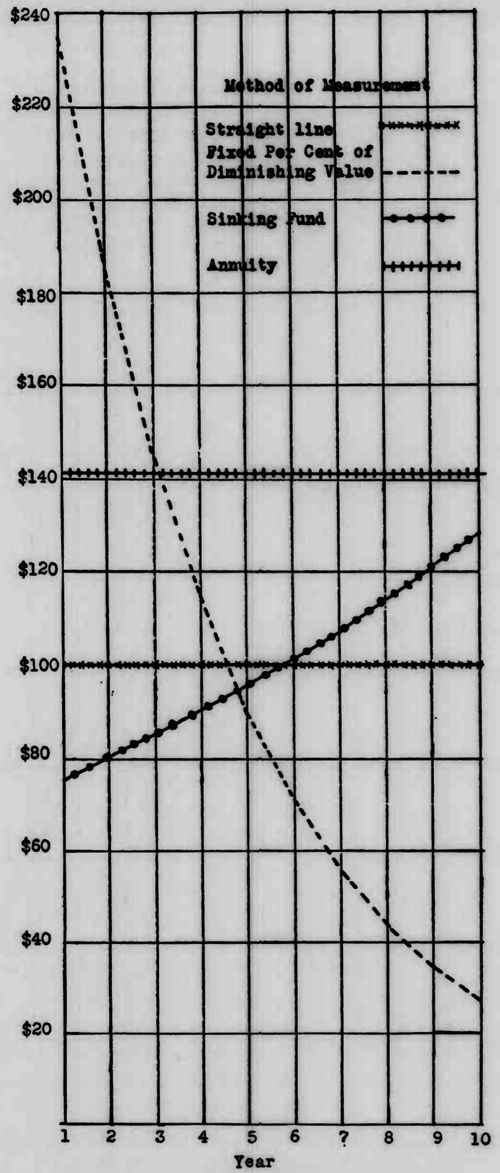


FIGURE 154

Annual Depreciation Measured by Different Methods. Data in Figure 144.

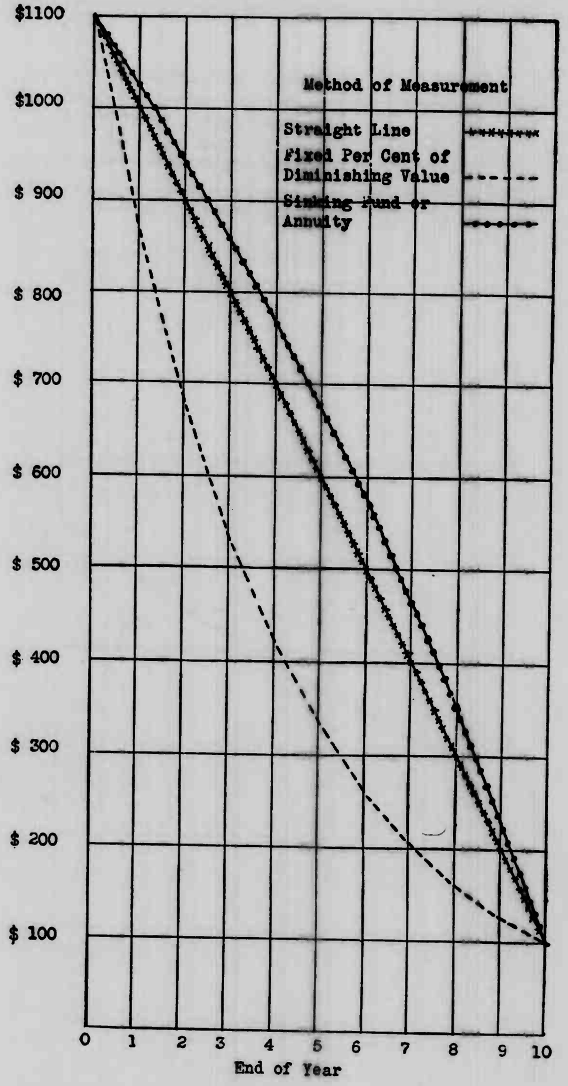


FIGURE 155
Residual Value of Asset at End of Successive Periods for Different Methods of Measuring Depreciation. Data in Figure 144.

year of that asset's service. Incidentally, the student should note the great difference in the appearance of a graph due to a change in the scale, the vertical scale in Figure 154 being five times that in Figure 156; Figure 156 reproduces the data in Figure 154. Therefore, in studying a graph both the vertical and the horizontal scales should be known before any conclusions are drawn from the shape of the line.

One of the countless ways of using graphs is exemplified in Figure 157. The solid line represents the current ratio, that is, dollars of current assets to each dollar of current liabilities as shown by the balance sheets of the United States Steel Corporation as of the thirty-first of December of each year from 1913 to 1929 inclusive. The broken line indicates the merchandise turnover as expressed by dollars of sales to each dollar of average inventory. A mere glance at these two graphs, drawn on the same paper to the same scale, brings out the general principle that as merchandise turnover increases, current ratio generally decreases, and *vice versa*. Thus placing two graphs in juxtaposition may disclose some new relationships.

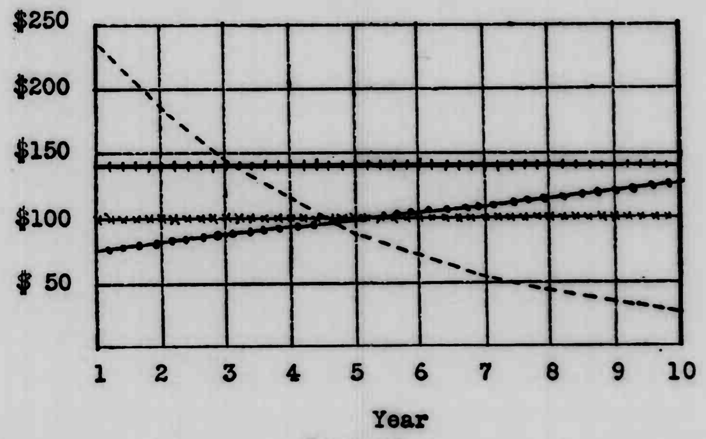


FIGURE 156
Annual Depreciation Measured by Different Methods. Data in Figure 144. Symbols as in Figure 154.

In Figure 158 are plotted the same data for residual values of a depreciating asset as shown in Figure 155. The difference is that in Figure 158 the "ordinates," or the horizontal coordinates, are spaced proportionally to the logarithms of numbers, and the base line as shown in this figure is $10.00 rather than zero. The sharp curve of the residual value of the asset, when depreciated by the fixed percentage of residual value method, has flattened out to a straight line in Figure 158. This is due to the fact that on a logarithmic scale equal percentages of increase or decrease are represented by equal distances. The semi-logarithmic coordinate paper used in Figure 158 is therefore very useful for plotting curves representing ratios.

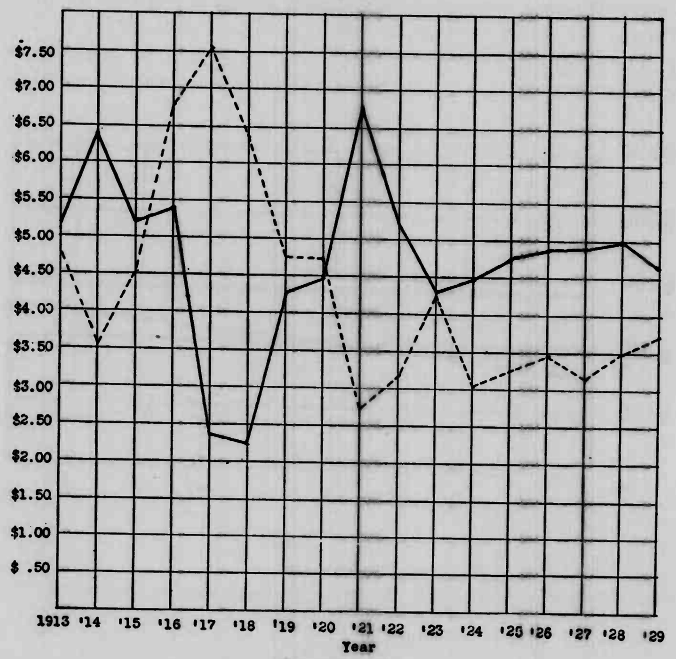


FIGURE 157
Current Ratio and Turnover of Inventories
United States Steel Corporation
Dollars of Current Assets to $1.00 of Current Liabilities as of December 31, ——
Dollars of Sales for year to $1.00 of Average Inventory for year, -----

In plotting curves on coordinate paper, the student should consider the following points:

1. The subject of the graph should be stated clearly.
2. The base line should appear on the graph, or, if this is impossible, the value of the lowest ordinate should be exactly indicated.
3. The scales for both the ordinates and the abscissas (vertical coordinates) should be apparent on the face of the graph, the valuations of important coordinates being written in.

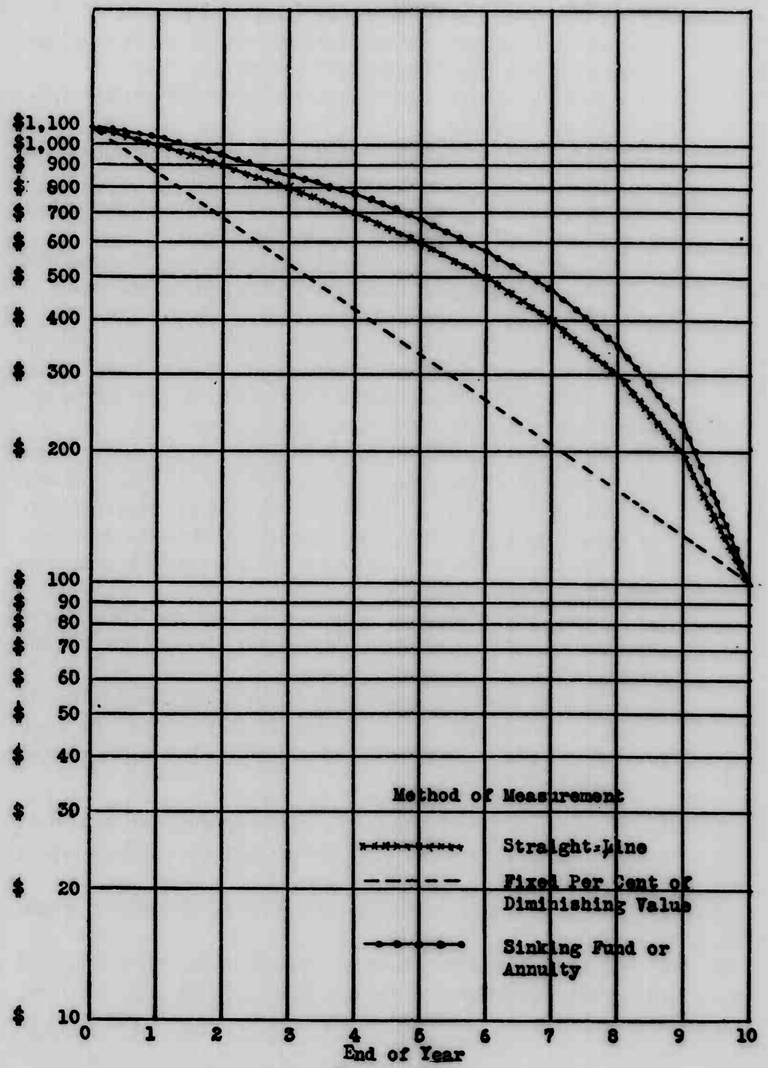


FIGURE 158
Residual Value of Asset at End of Successive Periods for Different Methods of Measuring Depreciation. Data in Figure 144.

4. The scales should be chosen to fit the available space.
5. The scales should be chosen to bring out the variations; too small a scale will not show these variations.
6. If a relationship has been reduced to an equation, the equation should be shown.
7. The symbolism of the lines plotted should be defined on the face of the graph or conveniently close to it.
8. The graph should be accompanied by a table of the values plotted or by the equations of the lines.
9. If several graphs are to be made representing the same sort of data, the scales of these graphs should be the same if possible.
10. If many lines are put on the same paper, the result may be confusion rather than clarification, particularly if they cross each other often. The reader of the graph should not be expected to carry much symbolism in his mind.
11. If two sets of data involving two different scales of values are presented on the same sheet, both scales of values should be shown, one at the left and the other at the right, or one at the top and the other at the bottom. Ordinarily, however, it is unwise to have two horizontal or two vertical scales on the same graph.
12. In plotting a time series it is best to begin at the left with the earliest date or period putting succeeding periods toward the right.
13. The zero or base line should usually be at the bottom, but if negative values are to be plotted, it will have to be high enough to allow for the largest negative value to be plotted beneath it.

Summary.—Graphic presentation of accounting and statistical data may be very valuable as a means of emphasizing the cardinal points in a summary fashion.

The most useful forms of graphic presentation are bar charts, maps, and graphs proper.

Both cross-hatching and symbols can be used in the bar charts and maps, and symbols can be used to distinguish lines in the graphs proper. No graphic presentation, however, should use so many symbols as to be confusing.

The values on a graphic presentation should be indicated very clearly, and a great number of different series of values should never be used.

The graphic presentation should always be accompanied by the table of values used in making it.

Some excellent work in this field has been done in accounting and finance, among which the Darville-Johnson Bond Yield Chart, and a graphic method of determining income taxes devised by O. C. Herdrich are worthy of special mention.

QUESTIONS

1. Describe the columnar or bar chart, and discuss the possibilities of its application.
2. A certain insurance company publishes a circular to demonstrate its stability. One page consists of a series of lines, each giving the total assets at a certain date. The total assets are increasing from top to bottom, and the type size used is correspondingly larger. Criticize this device.
3. Discuss in detail why it is unwise to attempt to show a considerable number of series of data in one graphic presentation.
4. Look through the files of the *Literary Digest* for pictorial presentation of quantities; measure the pictures, note the data accompanying them, and discuss the results.
5. Would a bar chart have been better or worse to present the data used in Figure 150?
6. To what business data is the spot map applicable? Does it have any use in accounting?
7. Discuss the problem of scale as it affects graphs proper and bar charts.
8. Discuss the necessity for showing the base line in either bar charts or line charts.
9. To what extent can the values read from a graph be used as the basis of accounting entries?
10. Why is it more difficult to work out the equation for an accounting relationship than that for an engineering relationship?

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Statistical Atlas of the United States, Superintendent of Documents, Washington, D. C.

PROBLEMS

Note. The Roman section number designates the chapter of the text which is principally illustrated by the problem. The problems marked with an asterisk have been taken from C. P. A. examinations.

I

1. From the following postclosing trial balance prepare a balance sheet of the National Manufacturing Company as of January 1, 1931.

Cash in Bank	$ 69,433.00	
Office Fund	100.00	
Customers' Accounts	273,842.00	
Inventory, Raw Materials	83,247.00	
Inventory, Supplies	4,932.00	
Inventory, Finished Goods	42,761.00	
Office Equipment	8,746.00	
Patents	125,000.00	
Real Estate	320,000.00	
Buildings	175,000.00	
Machinery	265,000.00	
Apartment House Property		
Site	10,000.00	
Building	30,000.00	
Bonds, dated and issued December 31, 1912—maturing and payable at the end of 50 years—interest at 6% payable semiannually		$ 200,000.00
Premium on Bonds Issued		20,000.00
Sundry Merchandise Creditors		78,392.00
Reserve for Bad Debts		8,294.00
Reserve for Depreciation on Buildings		10,000.00
Reserve for Depreciation on Machinery		30,000.00
Capital Stock—Preferred—7%		500,000.00
Capital Stock—Common		500,000.00
Surplus		61,375.00
	$1,408,061.00	$1,408,061.00

2.* Prepare a Balance Sheet from the following list of accounts of the American Manufacturing Company at the end of their fifth year in business, December 31, 1925.

Land	$ 15,000.00
Buildings	75,000.00
Machinery	100,000.00
Inventory—Raw Material	100,000.00
Inventory—Finished Goods	50,000.00
Sales—Manufactured Products	620,000.00
Sales—Purchased Products	200,000.00
Goods on Consignment (Purchased Products)	1,500.00
Office Cash	100.00
Cash in Bank	$ 6,000.00
Freight in on Raw Materials	7,300.00
Advertising	30,000.00
Installation Expense of Mfg. Prod. sold	15,000.00
Purchases—Raw Material	225,000.00
Purchases—Purchased Products	145,000.00
Discounts on Sales	12,500.00
Reserve for Depreciation—Buildings	12,000.00
Reserve for Depreciation—Machinery	40,000.00
Accounts Receivable	75,000.00
Notes Receivable	65,000.00
Notes Receivable Discounted	45,000.00
Accounts Payable	200,000.00
Notes Payable	50,000.00
Capital Stock	150,000.00
Certificate of Deposit	5,000.00
Insurance, Fire	5,700.00
Interest (Debit Balance)	2,500.00
Dividends	15,000.00
Mortgage Payable	30,000.00
Factory Wages	110,000.00
Officers' Salaries	45,000.00
Salesmen's Commission	72,000.00
Office Expense	6,000.00
Fuel—Power	80,000.00
Factory Supplies and Expense	18,200.00
Office Salaries	20,000.00
Sale of Old Machinery	3,500.00
Insurance Premiums on Officers' Lives	6,000.00
Discount Taken	5,000.00
General Sales Expense	8,000.00
Inventory—Purchased Products	15,000.00
Surplus	?
Inventories December 31, 1925—	
Raw Materials	158,500.00
Finished Goods	30,000.00
Purchased Products	10,000.00
Fuel	2,000.00

The Machinery sold was purchased January 1, 1921, for $10,000.00, and was sold June 30, 1925. The premium paid on insurance on officers' lives for 1925 was $900.00, the cash surrender value at January 1, 1925, being $3,400.00 and at December 31, 1925, $4,000.00. Unpaid factory payroll was $5,000.00 and unexpired fire insurance $1,500.00 at December 31, 1925. Allow depreciation on machinery at 10 per cent per annum on cost, and on buildings at 4 per cent.

3.* The A, B, & C Co. operates a retail store with two departments—X and Y. The following balances appear on the books of the company before closing:

Accounts Receivable—All good—X	$ 15,000.00	
Y	6,125.00	
Accounts Payable		$ 25,423.00
Advanced to B	1,075.00	
Bad Debts (X $1,400 and Y $500)	1,900.00	
Barn Rent and Expense	350.00	

Bank Loans		$ 12,000.00
Bills Receivable	$ 650.00	
Cash on Hand	250.00	
Capital Stock		20,000.00
Discount on Purchases—X		15,500.00
Y		9,768.00
Drivers' Wages	2,400.00	
Feed	640.00	
Furniture and Fixtures	5,000.00	
First National Bank	2,496.00	
General Advertising	7,720.00	
Horses, Wagons, etc.	1,700.00	
Inventory—December 31, 1923—X	26,106.00	
Y	15,000.00	
Insurance	1,125.00	
Interest and Discount on Notes Payable	925.00	
Loan from A		7,000.00
Office and General Expenses	1,200.00	
Purchases—X	224,300.00	
Y	99,600.00	
Rent and Light	4,000.00	
Surplus		2,920.00
Sales—X		243,800.00
Y		106,500.00
Salaries—Office	2,850.00	
Officers	10,000.00	
Salesmen—X	7,553.00	
Y	4,946.00	
	$442,911.00	$442,911.00

The books were closed on the basis of the above trial balance by taking up the inventory of merchandise, which amounted to $33,400.00 for Department X and $15,000.00 for Department Y.

Prepare a draft of the adjusting entries necessary to bring the books into accord with the adjusted statements, and a balance sheet based upon the following information:

> Delivery expenses should be charged equally to the two departments, and other expenses 2/3 to X and 1/3 to Y.
>
> The furniture and fixtures, horses, wagons, etc., were taken up on the books at the appraisal values at January 1, 1924. No additions were made during the year except that additional fixtures costing $450.00 were received in December. The bill for these fixtures had not yet been entered.
>
> Depreciation should be provided at the rate of 10 per cent of the beginning balance of the furniture and fixtures account and at 20 per cent for horses, wagons, etc.
>
> An error of $350.00 was discovered in the December 31, 1923, Inventory of Department X which resulted in an overstatement of that amount.
>
> The unexpired insurance amounted to $225.00 at December 31, 1924, and $200.00 at December 31, 1923. No adjustment had been made December 31, 1924.
>
> The bank loans consisted of two notes for $6,000.00 each. One note dated October 1, and due in four months bore interest at 6 per cent and the other dated November 1 and due in four months was a non-interest-bearing note which had been discounted at 5 per cent. There were no bank loans outstanding at the beginning of the year.
>
> Accrued taxes have never been taken up. The amount accrued is estimated to be the same as it was a year ago, *i.e.*, $300.00.
>
> The taxes accrued at December 31, 1923, had been paid in 1924, and charged to Office and General Expense.

4.* The following is a Trial Balance at December 31st, 1931, taken from the books of The Eclipse Manufacturing Company, Columbus, Ohio:

	Dr.	Cr.
Cash on Hand	$ 1,000.00	
Cash on Deposit	21,500.00	
Accounts Receivable, Customers'	185,000.00	
Bills Receivable, Customers'	26,500.00	
Merchandise Inventory, January 1, 1931[a]	195,000.00	
Material Purchases	365,000.00	
Supply Purchases	28,000.00	
C. S. Williams	2,000.00	
George Johnson		$ 1,500.00
C. S. Brown	500.00	
C. H. Evans	1,000.00	
Land	15,000.00	
Building	85,000.00	
Machinery and Equipment	150,000.00	
Small Tools	5,000.00	
Patterns and Drawings	2,500.00	
Patents, Trade-Marks, and Goodwill	8,000.00	
Insurance, Prepaid Portion	1,500.00	
Capital Stock Tax—Federal	200.00	
Capital Stock Tax—Ohio	300.00	
Accounts Payable		36,000.00
Bills Payable—Banks		50,000.00
Bills Payable—Through Brokers		50,000.00
Accrued Taxes—Local		3,000.00
Capital Stock—7% Preferred		200,000.00
Capital Stock—Common		200,000.00
Productive Labor	88,000.00	
Non-productive Labor	33,000.00	
Office Salaries	9,000.00	
Administrative Salaries	14,000.00	
Freight and Express—In	1,500.00	
Repairs and Maintenance	9,500.00	
Factory Expense	11,000.00	
Coal, Oils, and Grease	2,000.00	
Small Tools Purchased	1,000.00	

[a] The Merchandise Inventory January 1, 1931, consisted of Raw Materials $65,000.00, Work in Process $50,000.00, and Finished Stock $80,000.00.

Telephone and Telegraph	$ 500.00	
Stationery and Supplies	1,500.00	
General Office Expense	2,500.00	
Traveling Expense	12,500.00	
Salesmen's Salaries	25,000.00	
Merchandise Sales		$ 748,000.00
Cash Discount Allowed	8,300.00	
Cash Discount Earned		9,300.00
Returned Merchandise	11,700.00	
Allowances and Returns	5,500.00	
Preferred Dividends	10,500.00	
Common Dividends	12,000.00	
Interest Expense	8,000.00	
Interest Earned		500.00
Profit and Loss Surplus Account		50,000.00
Tax Expense	5,000.00	
Depreciation Reserve		20,000.00
Insurance	3,300.00	
	$1,368,300.00	$1,368,300.00

No entries had been placed on the books covering an issue of $100,000.00 first-mortgage 6 per cent Gold Bonds, dated November 1st, 1931, due in ten years from date and sold to a banking house for $94,000.00 and accrued interest to December 31st, 1931; proceeds from the sale being received on December 31st, 1931, at which date the Company paid $50,000.00 on Bills Payable and deposited the balance in the bank.

Draft the necessary journal entries covering this transaction as well as providing the amortizable proportion of the Bond Discount.

The merchandise inventory at December 31st, 1931, amounted to $165,000.00, consisting of raw material $55,000.00, goods in process $40,000.00, and finished stock $70,000.00.

Depreciation for the past year unprovided for on the books to be computed on January 1st, 1931, values, and at rates as follows:

Buildings valued January 1st, 1931, at $75,000.00 at 2 per cent.

Machinery and Equipment valued January 1st, 1931 at $120,000.00 at 5 per cent.

The Company annually wrote off one-sixteenth of its Patent Cost of $16,000.00.

The prepaid or unexpired value of Insurance at December 31st, 1931, was $1,800.00, and the prepaid value of Capital Stock Tax—Federal was $100.00 and that of Capital Stock Tax—Ohio was $200.00.

Salaries of the following officials for the last six months in 1931 had not been provided for on the books:

C. S. Williams, Annual Salary	$10,000.00
Geo. Johnson, Annual Salary	8,000.00
C. S. Brown, Annual Salary	6,000.00
C. H. Evans, Annual Salary	4,000.00

Provision had not been made for Bad Accounts amounting to $5,000.00, Prepaid Interest on Bills Payable—Banks, amounting to $500.00, and the Accrued Taxes—Local amounting to $6,500.00 altogether. Invoices aggregating $10,000.00 had not been credited on the books, representing the following purchases:

Material	$5,000.00
Supplies	2,500.00
Repairs and Maintenance	500.00
Factory Expense	500.00
Coal, Oils, and Grease	500.00
Small Tools	500.00
Stationery and Supplies	500.00

Unpaid Pay Roll amounts to $12,000.00, of which $9,000.00 was productive labor, and $3,000.00 was unproductive labor.

On December 26, 1931, the Board of Directors declared a dividend of one and three-quarters per cent (1¾%) on the Preferred Stock, covering the last quarter for the year 1931, and two per cent (2%) on the Common Stock, both payable to holders of record January 2, 1932.

Draft the necessary journal entries covering the foregoing, also draft the closing entries for the year. Prepare Balance Sheet as of December 31, 1931.

5. Edward Jonathan keeps his books by single entry. His original investment, June 5, 1922, was $10,300.00. As of December 31, 1931, his books show the following:

Cash	$ 2,500.00
Accounts with Customers	12,000.00
Notes Receivable	6,000.00
Notes Payable	3,000.00
Drawings (since January 1, 1931)	2,000.00
Sundry Creditors	5,000.00

You find that he owns a lot and store building for which he paid $17,000.00, of which $5,000.00 was the value of the land. He has held this real estate for 7 years, and the building should have been depreciated at 4 per cent per annum. You also find that his inventory of merchandise is $23,500.00, that he has prepaid insurance amounting to $250.00, that he has incurred expense bills of $500.00 not on the books, and that there is a mortgage of $5,000.00 on the real estate on which three months' interest at 6 per cent per annum has accrued.

Make the Balance Sheet of Edward Jonathan as of December 31, 1931.

II

1. Refer to I, 2. Prepare Statement of Profit and Loss for the year ended December 31, 1925.

2. Refer to I, 3. Prepare a Departmental Statement of Profits for the year ended December 31, 1924.

3. Refer to I, 4. Prepare Statement of Cost of Manufacture and of Sales and Statement of Profit and Loss for the year ending December 31, 1931.

4. Refer to I, 5. You learn that December 31, 1930, the net worth of Edward Jonathan was found to be $38,000.00. During the year 1931 he invested $1,500.00 additional capital. Make a Statement of Profit and Loss for Edward Jonathan for the calendar year 1931 by the single entry method.

5.* The Auto Parts Company of Dayton, Ohio, began business on January 1, 1931, and at the close of business on December 31, 1931, its trial balance appears as follows, viz.,

	Dr.	Cr.
Cash	$ 683.78	
Accounts Receivable	13,731.92	
Notes Receivable	885.62	
Office Furniture and Fixtures	798.66	
Tools, Machinery and Dies	32,356.05	
Factory Supplies	1,462.25	
Shipping Materials	481.38	
Stationery and Printing	1,327.15	
Accounts Payable		$ 4,788.47
Notes Payable		22,400.00
Capital Stock		65,000.00
Tool Room Expense	5,728.34	
Factory Expenses	741.87	
Insurance	301.27	
Power	599.45	
Rent	4,800.00	
Advertising	2,973.26	
Traveling Expenses	1,590.77	
Bad Accounts	89.73	
Commission on Sales	1,627.08	
Officers' Salaries	7,000.00	
Office Salaries	2,500.00	
Office Expenses	763.09	
Interest Paid	1,310.52	
Discounts Allowed	1,591.08	
Discounts Earned		501.71
Taxes	804.29	
Depreciation	1,702.95	
Postage	336.32	
Sales		71,622.93
Direct Labor	14,544.84	
Purchases of Raw Material	58,113.99	
Jobbing Sales		10,547.74
Jobbing Purchases	15,691.81	
Direct Jobbing Expense	323.38	
	$174,860.85	$174,860.85

Additional information is available at the close of business December 31, 1931: that the raw materials on hand valued at cost amount to $6,708.75; that goods in process were $14,863.16; and that finished goods on hand were $15,836.59.

Inventories of supplies on hand at December 31, 1931, were as follows:

Factory Supplies	$400.00
Shipping Material	100.00
Stationery and Printed Supplies	300.00

and 5 per cent has been charged for depreciation by reducing the Tools, Machinery, and Dies Account.

The Company manufactures small finishing hardware for automobiles, operating a number of punch presses which necessitates the maintenance of a tool room to keep the machinery and dies in a highly efficient state of repair.

"To complete its line" certain merchandise is purchased and sold for the accommodation of customers who purchase its manufactured products, but no attempt is made to operate the jobbing end of the business at a profit.

Jobbing Inventory December 31, 1931, amounts to $5,677.89.

From the foregoing data the officers request you to prepare financial statements "such as are customary," but not to charge anything against the jobbing sales other than purchase cost and the "direct jobbing expenses."

III

1. The Blank Store keeps its inventory at retail. From the following information, find the inventory of merchandise at "cost" as of December 31, 1932.

	Cost Price	Selling Price
Sales		$130,000.00
Mark-Downs		5,000.00
Inventory January 1, 1932	$20,000.00	40,000.00
Purchases	70,000.00	120,000.00
Mark-Ups		6,000.00
Purchase Returns	5,000.00	8,000.00

2.* The following figures are for three departments of a store in the central west. You are to prepare a table such as you would present to the proprietor showing for each department:

1. Cost of Sales
2. Percentage of Cost to Sales
3. Gross Profit
4. Percentage of Gross Profit
5. New Inventory at End of Month

INVENTORY FIRST OF MONTH—JANUARY 1, 1931

Department	Cost Price	Retail Price
A	$12,045.87	$20,260.78
B	2,264.00	3,911.62
C	4,916.45	7,505.13

PURCHASES FOR JANUARY

Dept.	Purchases Cost	Purchases Retail	Purchase Allowance	Mark-up on Retail	Purchases Returned Cost	Purchases Returned Retail
A	$260.25	$437.11	$10.15	—	$20.00	$32.50
B	259.34	419.74	—	$25.40	—	—
C	303.72	458.26	—	27.25	—	—

SALES FOR JANUARY

Department	Sales	Mark-Down on Retail
A	$1,332.94	$0.99
B	208.89	2.49
C	909.09	3.20

3.* A cloak manufacturing concern, turning out but one grade of cloaks, claims to have been robbed on the night of April 16, and forthwith files a claim under a Burglary Insurance Policy it was carrying.

The proof of the loss filed by the assured contained two items, viz., 300 Cloaks valued at $12,000.00, and 1,000 yards of Silk stated to be worth $1,500.00.

The Insurance Company, being notified of the loss, immediately ordered an Inventory to be taken, which was done on the morning of the 17th and disclosed the following:

1,250 Cloaks
6,250 Yards of Cloth
2,500 Yards of Silk

On the same day you were called in by the Insurance Company to examine the books for the purpose of proving or disproving the claim, when the following information was obtained:

First: That a complete Inventory had been taken on January 1, of the Cloaks, Cloth, and Silk on hand at that date, the Inventory Sheets of which had subsequently been lost or destroyed. However, the books showed that the total valuation was $32,675.00, and the firm's representatives assured you that this was correct and that the Inventory had been properly valued at cost prices which had not fluctuated since.

Second: That the Cloth and Silk purchases subsequent to January 1, had amounted to 18,750 yards of Cloth and 5,000 yards of Silk at average prices of $.50 and $1.00 per yard of each fabric respectively.

Third: That 3,000 Cloaks had been manufactured during the same period which had consumed 20,000 yards of Cloth and 5,000 yards of Silk, while 4,500 Cloaks had been sold.

You were further informed that the Manufacturing Cost was as follows:

Material	$5.00 Per Garment
Labor and Other Expenses	3.50 Per Garment
Total	8.50 Per Garment

Give the gist of your report to your client; and state what, if any, different case you could have made out for the firm had you been employed by it instead of by the Insurance Company.

4.* On April 1st, 1929, a Tobacco Manufacturer purchases 42,600 lbs. of leaf (lying in bond) at 12½ cents per lb. His trade is divided into two departments, No. 1 and No. 2.

During the half year ended, September 30, 1929, he takes out of bond 34,200 lbs., paying thereon duty at 75 cents per lb., and sundry expenses, one cent per lb. This leaf is used in the manufacturing, viz.: 21,500 lbs. for Number 1, and 12,700 lbs. for Number 2, and in process of manufacture the weights increase by 12 per cent and 15 per cent, respectively.

Of the finished article he sells 19,240 lbs. of Number 1 at $1.25 per lb., and 13,600 lbs. of Number 2 at $1 per lb.

The expenses are: wages, $3,630; packing, $550; freight, $615; salesmen's expenses, $980; rent, taxes, etc., $715; advertising, $435; repairs, $280; sundries, $165.

He values his stock on hand at September 30, 1929, as follows: leaf in bond at cost; in department Number 1 at $1.02 per lb.; in department Number 2 at 91¢ per lb., dividing the expense thus: two-thirds to Department Number 1, and one-third to Department Number 2.

Prepare Ledger Account of Leaf in Bond, and Profit and Loss Accounts for the half year for Departments Number 1 and Number 2, showing details, results, and stocks (weight and cost price) on hand.

5.* A canning company advanced seed to growers, and contracts to purchase their crops, either for canning purposes or for seed, prices to be paid for the green crop being fixed in the contract at a specific figure, and prices for seed being set at the market quotations on a specific date. The contracts also provide that the growers shall return a quantity of seed equal to the quantity advanced.

In an audit of the canning company's accounts, made at the end of the calendar year, you find that the cost of the seed advanced to growers was 14¢ per pound and that the seed had been charged to "Advances to Growers" at this figure, seed inventory being credited. When seed was delivered by growers at the end of the season, they were paid at the contract price for all seed delivered, in excess of the quantity advanced, the market price on the specified date being 8 cents. The entries made at the beginning of the year covering advances to growers were then reversed, closing out the advances account, and taking the seed into inventory at the original cost.

(a) Would this procedure meet with your approval?

(b) Give reasons for your conclusion.

6. (a) By the oldest price first method, and (b) by the standard cost method, keep inventory records for the following transactions in Brazil Block #2 Vein Coal:

Receipts: September 1, 1931, 200 tons @ $2.00; September 5, 150 tons @ $2.20; September 10, 200 tons @ $2.25.

Sales or Issues: September 2, 1931, 20 tons; September 4, 30 tons; September 6, 70 tons; September 8, 100 tons; September 11, 250 tons.

Compare the results obtained by the two methods of valuation.

7. From the following data prepare a statement of the cost of manufacture and of sales of the White Company for the calendar year 1931:

Extract from the Ledger
Balances as of December 31, 1931

Inventory of Raw Materials, December 31, 1930	$ 6,000.00
Purchases of Raw Materials	60,000.00
Inventory of Goods in Process, December 31, 1930	9,000.00
Inventory of Finished Goods, December 31, 1930	6,000.00
Direct Labor	36,000.00
Indirect Labor	7,000.00
Heat and Power	6,000.00
Miscellaneous Manufacturing Expense	13,000.00

The inventory of Goods in Process December 31, 1930 consisted of: Materials $4,000.00, Direct Labor $3,000.00, and Manufacturing Expense $2,000.00.

Raw materials issued to factory during 1931 $59,000.00.

Inventory of Goods in Process December 31, 1931 must be computed. At that date the raw materials in process had cost $5,000.00. The average completion was estimated at 40 per cent.

Inventory of Finished Goods December 31, 1931 must be computed. It is found that the raw materials in the finished goods inventory cost $6,500.00.

IV

1.* An electric light company finds that its feed wires to a certain district are not adequate to carry the load and installs a new wire on the same poles. The cost of the new line was $15,000.00 for material and $7,000.00 for the expense of installation.

The cost of that part of the old line which was removed was $6,000.00 for material and $3,000.00 for installation. The salvage value of the old material was $5,000.00. The cost of that part of the old line which was not removed was $4,000.00 for material and $3,000.00 for installation.

The line had been in service for 8 years, and depreciation had been regularly provided at 3 per cent of the cost value of the transmission system.

Draft the journal entries necessary to record properly the facts.

2.* The replacement value of machinery and equipment is given as $225,000 in an appraisal recently made for a company; the sound value as $190,000. The book value of the machinery and equipment is $240,000, and the Reserve for Depreciation, Machinery, and Equipment account, is credited with $49,000.

(a) Give the necessary journal entry or entries which will record the proper facts upon the ledger.

(b) State the practice which the company evidently has followed in recording the purchase of new equipment.

(c) Outline a system for having data available in compact form relative to the original cost, repair, replacement, and depreciation of equipment, and state the relationship of such a system to the general financial accounts.

3. An asset cost $15,000.00, and was estimated to have a service life of fifteen years. When the asset was eight years old it was appraised as having a replacement value new of $25,000.00 and a total service life of twenty years.

(a) Make the entry to incorporate the results of the appraisal in the books. Assume that at the end of each year, including the eighth, Depreciation had been debited and Reserve for Depreciation credited with $1,000.00.

(b) Make the entry for Depreciation at the end of the ninth year of life of the asset.

4. A mining corporation owned a coal deposit which was estimated at 17,000,000 tons. By the methods in use only 60 per cent of the coal could be extracted. The cost of the deposit was $680,000.00. The cost of the machinery, tipple, buildings, and spur track was $59,500.00.

During 1931, 20,000 cars of coal were mined and shipped, the average load per car being 50 tons. What should be the allowance for depletion in 1931? What should be the allowance for depreciation? The 1931 production was about the average expected.

5.* A is the owner and operator of a Stone Quarry which, owing to weather conditions, cannot be operated between December 1 and February 28. B caused damage to the quarry which delayed the commencement of operations until April 15, from which date the quarry was worked until November 30 and produced 71,000 cubic yards at a quarry cost of 29¢ per cubic yard. The product was all sold at 77¢ per cubic yard. Overhead Expense for the year $10,000.00. B repaired the quarry at his own expense. You are required by the lawyer for A to indicate the measure of consequential damage as a basis for action. In your answer, illustrate your method.

V

1. June 25, 1931, your firm bought 10 5-per-cent First Mortgage Gold Bonds of the X Company, due November 15, 1935. They were priced to yield 4½ per cent, and, of course, your firm paid the accrued interest. The par value was $1,000.00 per bond. The interest is payable semiannually.

Make the proper entry on the books of your firm for the purchase of the investment.

Make the proper entry on the books of your firm for the interest collected November 15, 1931.

Make the proper adjustment for the interest on these bonds at the time your firm closes its books, December 31, 1931.

For convenience in calculating, assume the thirty-day month and the 360-day year.

2. July 1, 1927 your firm bought a 90-per-cent interest in the common stock of the T Company, 900 shares which cost, including brokerage, $92.50 per share. January 29, 1930, your firm bought 50 additional shares at $102.00 per share.

The T Company reported profits as follows: December 31, 1927, $10,000.00; December 31, 1928, $18,000.00; December 31, 1929, $3,000.00; and December 31, 1930, loss, $1,000.00. The T Company pāid dividends as follows: January 5, 1928, $5.00 per share; January 5, 1929, $6.00 per share; January 4, 1930, $3.00 per share; January 6, 1931, $2.00 per share.

Make the journalized entries for opening the investment account and for each of the events described above (a) on the supposition that the investment is carried at cost, and (b) on the supposition that your firm takes up the profits and losses of the subsidiary as reported.

3.* A jobber in Chicago imports some pocket knives. You are asked to determine his cost, and are presented with the following data:

Invoice from the manufacturer in Germany, as follows:

300 doz. No. 15 knives @ Marks 4,400.00 per doz.	M 1,320,000.00
400 doz. No. 25 knives @ Marks 9,400.00 per doz.	M 3,760,000.00
300 doz. No. 35 knives @ Marks 25,000.00 per doz.	M 7,500,000.00
Charges for packing	M 240,000.00
2 seagoing cases	M 160,000.00
Total	M12,980,000.00

The jobber had bought marks sufficient to pay this invoice. He bought them at the rate of .000045.

He was also obliged to pay the manufacturer $2.50 for a consular invoice covering the shipment.

Import duty on pocket knives is as follows:

Valued at not over 40¢ per doz.	1¢ each plus 50% ad valorem
Valued at over 40¢, not more than 50¢ per doz.	5¢ each plus 50% ad valorem
Valued at over 50¢, not more than $1.25 per doz.	11¢ each plus 55% ad valorem
Valued at over $1.25, not more than $3.00 per doz.	18¢ each plus 55% ad valorem

Duty was assessed on foreign value at time of exportation, on which date the rate of exchange was .00005.

Broker's charges, such as war tax, insurance, entry and other fees, and other expenses incident to clearing the goods at the customs house, total $10.08.

Broker's charges and consular fees are to be apportioned according to value of the three kinds of knives (not including packing and case charges).

Freight and cartage to jobber's warehouse total $15.00.

The knives are of equal size and weight, and require the same amount of packing.

For the purpose of assessing specific duty, the merchandise cost alone (without packing and case charges) is to be used. Ad valorem duty is to be figured on the entire amount of the invoice, each class of knives to bear a share of packing and case charges in proportion to its weight. Consular fee is not considered when assessing duty.

Determine the delivered cost of each kind of knife, showing your solution in detail.

4.* The Sound Farm Mortgage Investment Company operated in Montana and Chicago. Its business is the loaning of money on the security of mortgages of farm property, loans being limited to 50 per cent of the appraised value of the proposed security, and the selling of mortgages. The loans are made in Montana at a practically effective interest rate of 9 per cent per annum, but as mortgages bearing only 6 per cent per annum are salable in Chicago, the difference of 3 per cent per annum for the term of the loan is added to the amount loaned, and the mortgage deed is drawn up to cover the amount. The mortgages are sold at face value, the company making a commission amounting to the difference between the face value of the mortgage and the amount loaned. For example, if a farmer desires a loan of $5,000.00 for five years, he is required to pay 9 per cent interest per annum, but in the following manner: The mortgage deed is drawn up, specifying interest at 6 per cent per annum, in the amount of $5,750.00, but he is actually loaned only $5,000.00. The difference, $750.00, represents 3 per cent per annum for five years on $5,000.00. The mortgage would be sold for $5,750.00.

The company, in order to carry on business, has to borrow extensively, paying about 6 per cent per annum for money, and of course the loans have to be covered by deposit of mortgages as collateral.

You are required to show, in journal form, the entries necessary to record loans made and the sale of mortgages. Give reasons for your treatment.

How would you show mortgages on hand in the balance sheet? Give reasons.

5.* On January 1, 1906, The Never Slip Razor Company was incorporated with a capital stock of $50,000.00, subscribed as follows:

J. Colgate	$10,000.00
T. Williams	20,000.00
R. Armour	20,000.00

Colgate's subscription was settled by the transfer of patent right to the Company. Williams and Armour paid cash.

W. Morgan was appointed manager, at a salary of $5,000.00 and 10 per cent commission on the profits prior to charging his commission.

At December 31, 1915, the financial condition of the Company was as follows:

ASSETS	
Current and Working	$ 75,000.00
Patents, etc.	65,000.00
Total	$140,000.00

LIABILITIES

Current and Accrued	$ 10,000.00
Capital Stock	50,000.00
Surplus	80,000.00
Total	$140,000.00

The current and accrued liabilities of $10,000.00 include $4,000.00 due to W. Morgan for excess of salary and commission to date over drawings.

The profit and loss account for the ten years showed net profits available for dividends as follows:

1906	$ 4,500.00
1907	13,500.00
1908	27,000.00
1909	18,000.00
1910	27,000.00
1911	36,000.00
1912	45,000.00
1913	63,000.00
1914	81,000.00
1915	126,000.00
Total	$441,000.00

It was decided to form a new company, The Never Slip Corporation, with a capital stock of $500,000.00, to take over the business as at January 1, 1916.

Stock was to be allotted to the original stockholders of the old company in the ratio of eight new shares for one old share. The balance was to be issued to W. Morgan to secure his services as manager, with an annual salary of $5,000.00 and no commission.

The Patents Account in the books of the old company was as follows:

Jan. 1, 1906	Patent Rights acquired from J. Colgate	$10,000.00
Dec. 31, 1906	Application Fees, Attorney Fees, etc.	1,000.00
Dec. 31, 1907	Application Fees, Attorney Fees, etc.	500.00
Dec. 31, 1908	Application Fees, Attorney Fees, etc.	500.00
Dec. 31, 1909	Application Fees, Attorney Fees, etc.	2,000.00
Dec. 31, 1910	Application Fees, Attorney Fees, etc.	12,000.00
Dec. 31, 1911	Application Fees, Attorney Fees, etc.	8,000.00
Dec. 31, 1912	Application Fees, Attorney Fees, etc.	7,000.00
Dec. 31, 1913	Application Fees, Attorney Fees, etc.	7,000.00
Dec. 31, 1914	Application Fees, Attorney Fees, etc.	7,000.00
Dec. 31, 1915	Application Fees, Attorney Fees, etc.	10,000.00
Total		$65,000.00

The date of the principal patent was January 1, 1909. It was decided that all expenditure on patents until that date should be capitalized. But, after that date, the account was to be adjusted by providing for writing off the principal patent by January 1, 1926, all expenditure—before and after January 1, 1909—being considered as connected with the principal patent.

Show how you would adjust the Patents Account. Also adjust the accounts so that W. Morgan is credited with 20 per cent commission during the 5 years ended December 31, 1915 in lieu of salary and 10 per cent. Give (1) W. Morgan's account, (2) a summary of net profits for the 10 years, (3) balance sheet of the old company, (4) balance sheet of the new company, (5) and a recommendation as to depreciation to be written off the intangible assets of the new company.

NOTE: Morgan's account should be adjusted so his commission will be 10 per cent of adjusted profits of 1909, 1910.

VI

1.* A manufacturing company offers premiums costing 75 cents each to its customers on the return of 100 of its wrappers. The company invested $5,000.00 in premiums and sold 500,000 units of the commodity during the year. You find that 300,000 of the wrappers have been redeemed, while it is estimated that 20 per cent will not be presented for redemption. At the end of the year how would you treat this matter in the preparation of the revenue account and balance sheet?

2.* The Merchants' Cooperative Manufacturing Company sells its product to retailers who are stockholders in the company. Shares of capital stock are sold at a premium; and retailers are induced to become stockholders by the argument that they can buy superior goods at low prices and eventually share in the distribution of the profits on capital stock holdings. Goods shipped to retailers are shipped at selling prices to be paid for when sold, or, in any event, within six months.

The published balance sheet of the company at the end of the first year's business is as follows:

Assets

Brands, Trade-marks, and Copyrights	$100,000.00
Cash	15,000.00
Inventories	100,000.00
Due from Dealers on Shipments	60,000.00
Organization Expenses	36,000.00
Furniture and Fixtures	5,000.00
Treasury Stock	10,000.00
Due on Capital Stock Subscriptions	65,000.00
	$391,000.00

Liabilities

Current Accounts	$ 13,800.00
Dividends Payable to Stockholders	7,200.00
Capital Stock, Authorized Issue	250,000.00
Surplus	120,000.00
	$391,000.00

You ascertain the following facts:

That the operating profit on sales amounted to $12,400.00, being 7½ per cent of total sales.

That 10 per cent has been written off on Organization Expense and charged to Surplus.

That unpaid capital stock subscriptions include premiums amounting to $15,000.00; that the original subscriptions against which balances remain unpaid amounted to $65,000.00 par value; and that capital stock certificates are not issued until fully paid for.

That premiums have been paid on capital stock certificates issued in the amount of $13,800.00.

That "Brands, Trade-marks, and Copyrights" acquired were bought for $10,000.00 cash.

That a dividend of 3 per cent, in addition to that shown in the balance sheet, has been declared on capital stock.

That "Treasury Stock" has not been issued.

From the data submitted you are asked to criticize the published Balance Sheet; prepare an adjusted balance sheet.

3. The Q Corporation, which is to be reorganized, has the following summarized balance sheet:

Assets	
Sundry Assets	$3,500,000.00
Equities	
Liabilities	$2,000,000.00
Capital Stock (10,000 shares, par value $100.00 per share)	1,000,000.00
Premium on Capital Stock	50,000.00
Earned Surplus	250,000.00
Surplus from Appraisal of Assets	200,000.00
	$3,500,000.00

The reorganization is carried through as follows:

(a) 99,000 shares of new no-par-value stock are exchanged for the 10,000 shares of old stock.

(b) 10,000 shares of no-par-value first preferred stock are sold at $100.00 per share less 25 per cent commission to the bankers. This stock is entitled to $5.00 dividends per year, non-cumulative and non-participating. In case of dissolution the holders of this stock are to receive $100.00 per share before there is any distribution to the holders of the common stock.

(c) 1,000 bonds, par value $1,000.00 each, and 1,000 shares of the new no-par-value common stock are issued to pay for a new plant which has been appraised at $950,000.00 by a firm of independent appraisers.

(d) This financial reorganization takes place merely by amendment of the old charter, the filing fees being $2,010.50.

Make entries for the reorganization; prepare a balance sheet of the corporation after the completion of the reorganization.

4. The Q Corporation, just after completing the reorganization described in VI, 3, and before transacting any other business, bought 500 shares of its own preferred stock at $95.00 per share, and 1,000 shares of the common stock at $11.00 per share, in order to rid itself of two dissatisfied stockholders. One thousand shares of the common stock were donated to provide additional working capital.

(a) Make journalized entries for these transactions.

(b) Compute the book value of each type of stock per share after these transactions have been posted. (There will be no "accrued" dividends on the preferred stock at this time.)

5. Refer to VI, 3. Suppose that instead of reorganizing under the old charter, a new corporation, the N Company, had been formed, which issued the new no-par-value stock in exchange for the stock of the Q Corporation, dissolved the Q Corporation, taking title to its assets and assuming its liabilities, and then issued the preferred stock, bonds, and additional common stock as in VI, 3. The same filing fees were paid.

Make entries for the reorganization on the books of both companies, and prepare a balance sheet of the N Company.

6.* The directors of The Charles Manufacturing Company decide to change their plan of capitalization by retiring their common stock and issuing preferred stock and new common stock in place of it. On December 31, 1931, their books show $1,000,000.00 common stock and $300,000.00 surplus. The new plan offered each common stockholder 1.3 shares of preferred stock and 1 share of new common stock for each share of old common stock, fractional shares amounting to $6,400.00 to be redeemed in cash. Amendments to the articles of incorporation were duly made, providing an authorized amount of $1,500,000.00 preferred stock, and $2,000,000.00 of common stock. On April 1 all exchanges had been completed with the following exceptions: 1,000 shares of the old common stock had not been turned in for cancellation and exchange, and only $6,100.00 had been paid in settlement of fractional shares.

Draft the journal entry or entries to record the above changes. The par value of each kind of stock was $100.00 per share.

7.* You are called into consultation by the president of a corporation and are shown its balance sheet which contains among the current assets an item of "Treasury stock, $275,000.00." You are informed that the corporation's banker has frequently commented unfavorably on this item in statements submitted for credit. The president has no plan for getting rid of the item, other than by a stock dividend, but prefers not to issue such a dividend, and asks your opinion and advice.

You find the treasury stock account in the ledger consists of a cash entry as follows: "June 15, 1921—Purchase of 2,500 shares ($100.00 par) at $110.00 from J. G. Brown, $275,000.00," and that the price was determined upon as being at approximate book value at time of purchase from Mr. Brown.

What advice do you give, and what entries, if any, do you recommend for putting it into effect?

VII

1.* A large wholesale house paid its employees by check, the pay roll being compiled from weekly reports submitted by department managers through whom the checks were distributed after issue. An employment department engaged all new employees and certified their names and rates of pay to the office. Department heads had authority to discharge employees. Accidental discovery is made of the fact that a department manager has habitually included employees on his weekly report for some weeks after their discharge and has appropriated the checks, forging the endorsements.

What system would you recommend for the prevention of frauds of this kind?

2.* The Trial Balance furnished by the bookkeeper of the Adams Manufacturing Company on December 31, 1931 (before the audit), was as follows:

Cash in Bank	$ 10,346.27	
Accounts Receivable	149,256.00	
Notes Receivable	15,437.20	
Inventories	97,362.00	
Prepaid Expenses	976.00	
Plant and Equipment	75,350.00	
Reserve for Depreciation		$ 11,302.50
Accounts Payable		19,347.00
Notes Payable		12,300.00
Bonds Issued		20,000.00
Capital Stock		200,000.00
Surplus		2,229.00
Sales		368,929.88
Purchases	75,000.00	
Labor	157,362.41	
Factory Expenses	13,276.00	
Depreciation	3,767.50	
General Expenses	31,000.00	
Interest and Discounts	4,975.00	
	$634,108.38	$634,108.38

During the audit for the year 1931 the following facts were disclosed:

(1) The total of the net cash column of Cash Receipts was $500.00 short.

(2) Four names on the labor pay roll were found to be dummies. A total of $1,760.00 had been paid to persons representing the dummies.

(3) On cash payments items totaling $1,376.00 were charged to General Expense which could not be verified.

(4) The footing of the debit of Factory Expense account was over $600.00.

(5) The footing of the Net Cash column of Cash Payments was over $1,135.00.

(6) A check payable to the Chicago Office Supply Company for $785.00 was charged to Accounts Payable and also to General Expense. The Receiving Register showed no record of anything having been received from the Chicago Office Supply Company, and no invoices or statements from them were on file.

(7) The debit footing of Accounts Payable ledger account was over $250.00.

(8) An auto truck purchased in January, 1931, for $3,500.00 had been charged to Factory Expense. Expected life, 5 years.

(9) The bonds were issued July 1, 1930, and the mortgage recital provided that one-twentieth of the par value should be reserved out of profits annually until paid and a similar amount should be paid into a sinking fund of which the X Trust Company was to be trustee. A letter from the X Trust Company shows that there is a balance of $1,015.00 in the sinking fund, of which $15.00 is interest earned at 3 per cent per annum.

(10) The certificate from the bank shows a balance on December 31, 1931, of $11,362.27. The checks outstanding totaled $2,016.00.

(11) The inventory of materials December 31, 1931, showed a total of $17,846.00. Errors in addition and multiplication were discovered which showed that the above total was inflated by $9,476.00.

(12) The Interest and Discount is made up of Sales Discounts of $4,525.00, Purchase Discounts of $1,315.00, Interest Paid $2,500.00 and Interest Earned $735.00.

(a) Prepare adjustments necessitated by these facts; also prepare a balance sheet and profit and loss statement in accordance with the facts.

(b) Prepare a statement showing the company's loss through fraud disclosed by your audit.

3.* Comment on the following data taken from the books of the Sunrise Company:

1930	Sales for Cash	Sales on Account	Collections on Accounts Receivable	Purchases
January	$6,254.00	$14,283.00	$12,872.00	$ 9,528.00
February	6,389.00	14,794.00	14,239.00	10,350.00
March	7,142.00	16,007.00	14,583.00	11,942.00
April	7,324.00	16,785.00	15,230.00	13,260.00
May	7,592.00	16,982.00	14,890.00	16,135.00
June	7,253.00	17,301.00	21,243.00	10,231.00

	Debit Balance Accounts Receivable	Inventory of Merchandise at Cost
1929		
December 31	$17,329.00	$23,520.00
1930		
January 31	18,740.00	
February 28	19,295.00	
March 31	19,719.00	
April 30	20,274.00	
May 31	21,366.00	
June 30	20,424.00	21,763.00

Note that there have been no returns or allowances on either purchases or sales and that no cash discounts have been allowed. No accounts have been written off as bad debts, and the only proper credits to customers' accounts have resulted from collections in cash. All merchandise received is marked for sale at a price which will yield 50 per cent profit on the sales price, but there have been mark-downs during the period amounting to $6,200.00.

4.* Fraud is suspected on the part of the new cashier of the A. Company, and you are asked to check the transactions recorded by him as shown in the cash book for the month of September, 1931. The cash book appears as follows:

Receipts

Sept.	1	Collections from Customers	$ 2,707.51
	2	"	2,101.01
	4	"	2,157.43
	6	"	1,846.78
	8	"	2,250.74
	11	"	2,213.18
	15	"	3,667.20
	18	"	2,038.48
	25	"	2,590.62
	30	"	2,252.63
			$23,487.09

Disbursements

Sept.	1	Bank Overdraft	$ 15.25
	3	Checks Issued	4,635.72
	8	"	4,945.38
	15	"	3,780.71
	22	"	502.00
	29	"	4,583.21
	30	Balance	5,024.82
			$23,487.09

You are to assume that the overdraft on September 1 is correct. The bank statement of October 1 shows that the deposits for the month of September amounted to $23,410.48, and canceled checks for the month amounted to $14,249.22. Cash not deposited amounts to $15.00 and checks outstanding on September 30 total $4,636.48.

5.* In examining the accounts of a corporation you find that the Accounts Receivable were stated as $216,100.00 in a financial statement already prepared by the company's bookkeeper and handed to a banker. Upon examining the accounts you find that this amount is made up of the following items:

Trade Accounts Receivable	$175,000
Advances on Merchandise Purchased	5,000
Cash Advanced to Officers	10,000
Unpaid Subscriptions to Capital Stock	8,500
Advances to Traveling Salesmen, for Expenses	350
Consignees' Accounts (full selling price of goods shipped on consignment, credited to sales)	7,500
Claims against Railroad and Express Companies	1,750
Investments in Other Companies	8,000

Although the controlling account with Accounts Receivable stands debited with $175,000 in the general ledger, you learn that the sum of the individual debit balances in the sales ledger is $190,000, and that the sum of the individual credit balances in the sales ledger amounts to $15,000.

(a) You are asked to criticize the treatment of these items, stating such adjustments as it would be advisable to make in preparing the operating and financial statements, and to show exactly how the several items should appear in the financial statement.

(b) Would you recommend that a corrected copy of the financial statement be given the banker?

(c) Assume that upon further investigation you discovered that the company had not charged off any accounts as bad debts during the six years that it has been in business, and that no provision has been made for absorbing such losses through a Reserve for Bad Debts account.

VIII

1.* In taking up the audit of the accounts of a company for the year to December 31, 1922, you find that the adjustments made at the previous audit for the year 1921 have not been taken on the books and that therefore the books are not in agreement with the audited accounts of that date. Assuming the following were the adjustments referred to, what, if any, disposition would you make of the items of this audit, illustrating your answer with draft journal entries, viz.:

To record—

(1)	Invoices for Merchandise in Transit at December 31, 1921, not on books	$ 5,000.00
(2)	Invoices for Merchandise Received but not Entered	10,000.00
(3)	Reserve for Bad Debts (said Debts were written off in 1922)	2,000.00
(4)	Factory Expense Bills of 1921 not entered until January, 1922	750.00
(5)	Pay Roll Accrued at December 31, 1921	6,000.00

(6) Insurance Premiums paid in advance at December 31, 1921	$ 500.00
(7) Taxes for year ending December 31, 1921, not entered until May, 1922	1,000.00
(8) Reserve against excess valuation of Inventory, December 31, 1921	10,000.00
(9) Depreciation not taken up on books prior to January, 1921, $5,000.00; year ending December 31, 1921, $1,000.00	6,000.00
(10) To write off an unlocated difference in the Accounts Receivable Controlling Account at December, 1921, which, however, was located and canceled in 1922	1,500.00

Disregard questions of federal taxes.

2.* You are asked to submit a statement of the profits of a company for the two years ending December 31, 1927. No dividends have been paid in recent years, and the Surplus Balance at December 31, 1927, per the books, amounts to $421,000.00, comprising:

Balance December 31, 1925	$189,000.00
Profits for 1926	92,000.00
Profits for 1927	140,000.00
	$421,000.00

As a result of your audit, the following matters require consideration as at the respective dates:

January 1, 1926:

Bad Debts amount to $12,000.00, for which there is no provision in the books.

Consigned goods (own) are included in the Inventory at $120,000.00 which are priced at 20 per cent in excess of cost.

The following liabilities are omitted from the books:

New Construction	$25,000.00
Material Included in Inventory	3,000.00
Wages	2,400.00
Accrued Taxes	1,700.00

December 31, 1926:

Bad Debts amount to $9,000.00 not provided for.

Consigned goods (own) amount to $180,000.00, which are valued at 20 per cent in excess of cost.

Liabilities omitted from books:

Goods on Hand Omitted from Inventory	$8,000.00
Accrued Taxes	2,100.00

Plant additions, amounting to $9,000.00, have been erroneously charged to Profit and Loss.

The inventory is found to be overstated by $14,300.00 in respect of an error in recapitulation.

No provision for Depreciation was made on the books, and your calculations show that $5,000.00 should be provided.

December 31, 1927:

Bad Debts amount to $11,000.00, for which no Reserve is carried.

Consigned goods (own) amount to $156,000.00, being valued at 30 per cent in excess of cost.

Liabilities omitted from the books:

For Purchase of New Machinery	$12,000.00
Accrued Wages	3,200.00
Accrued Taxes	2,700.00

No provision was made on the books for Depreciation; you compute same at $7,000.00.

The profits for the year include a credit of $8,000.00 in respect of the settlement of a lawsuit arising from transactions of the year 1924.

Prepare a reconciliation of the Surplus at January 1, 1926, and Profits of the respective years as shown by the books with the adjusted figures as shown by the audited statement.

Prepare whatever journal entries are necessary to correct the books at December 31, 1927.

Disregard questions of federal taxes.

3.* You are called upon to make an audit of the accounts of a company for the purpose of submitting a Balance Sheet at December 31, 1931, and the results from operations for the two years ending that date. The Surplus Account shows the following:

Balance January 1, 1930	$280,000.00
Net Profit for year 1930	170,000.00
Net Profit for year 1931	320,000.00
Balance of Surplus Account December 31, 1931	$770,000.00

As a result of your audit, you find it necessary to adjust the accounts in respect to the matters mentioned below at the several dates:

January 1, 1930:

Consigned goods are carried in the Inventory in the sum of $150,000.00, which is 20 per cent in excess of cost.

The Reserve for Bad Debts is insufficient by $20,000.00.

Liabilities are omitted from the books:

Material Included in Inventory	$14,000.00
Accrued Taxes	2,000.00
Accrued Salaries	1,800.00
Purchase of Land for Extension of Plant	6,500.00

December 31, 1930:

Consigned goods are carried in the Inventory in the sum of $195,000.00 which is 30 per cent in excess of cost.

The Reserve for Bad Debts is understated by $42,000.00.

The following liabilities were omitted from the books in closing:

Material Included in Inventory	$9,000.00
Accrued Taxes	2,800.00
Accrued Rent	600.00
Accrued Salaries	1,100.00

In verifying the Inventory you found an item of $14,000.00 included twice.

You also find that goods were shipped but not billed prior to December 31, 1930, in the sum of $8,000.00, which was duly billed by the company in January, 1931.

You find that Construction items aggregating $12,000.00 were improperly charged to Repairs.

December 31, 1931:

Consigned goods were carried in the Inventory in the sum of $180,000.00, which was 25 per cent in excess of cost.

The Bad Debt Reserve was understated by $38,000.00.

The following liabilities were omitted from the books in closing:

Accrued Taxes	$ 3,200.00
Rent	1,200.00
Contractors' Bill for New Plant Construction	28,000.00

In verifying the Inventory you found that merchandise costing $13,000.00 already paid for had been omitted from the Inventory.

Repairs aggregating $6,000.00 for the year 1931 were improperly charged to Capital.

An amount of $42,000.00 was allowed by an insurance company for merchandise destroyed by fire in May, 1931. The claim for the loss was agreed upon in December, 1931, although no entry in the books was made therefor, and the insurance company paid the claim in January, 1932.

Prepare a statement showing reconciliation between the Surplus January 1, 1930, and Profits of the respective years as shown by the books and the corresponding figures as shown by the audited accounts after adjustment.

Disregard questions of federal taxes and depreciation.

4.* In examining the books of the A. B. Company for a period of four years, you find that the following adjustments are necessary in order to show correctly the net profits for each year before dividends. No adjustment need be made for federal taxes. You are given the balance sheets for each of the four years as per the books, and are asked to prepare:

(1) A clear, concise statement showing your adjustments and the net profits for each year as adjusted by you.

(2) A balance sheet as of December 31, 1931, with the adjusted surplus.

(3) A reconciliation of the surplus per books and the adjusted surplus.

COMPARATIVE BALANCE SHEETS

AS AT DECEMBER 31

A. B. COMPANY

	1928	1929	1930	1931
ASSETS				
Properties (at net book values)	$10,459,000.00	$10,185,000.00	$ 9,253,000.00	$ 7,990,000.00
Cash in hands of trustees under mortgage	—	16,000.00	122,000.00	724,000.00
Investments (at book values)	770,000.00	827,000.00	1,629,000.00	2,546,000.00
Sundry working assets	624,000.00	818,000.00	503,000.00	120,000.00
Inventories	769,000.00	1,066,000.00	1,036,000.00	315,000.00
Bills and accounts receivable	1,844,000.00	1,806,000.00	1,279,000.00	962,000.00
Cash	694,000.00	326,000.00	634,000.00	126,000.00
U. S. certificates of indebtedness	—	—	—	810,000.00
Deferred charges	39,000.00	32,000.00	46,000.00	36,000.00
	$15,199,000.00	$15,076,000.00	$14,502,000.00	$13,629,000.00
LIABILITIES				
Capital stock	$11,416,000.00	$11,354,000.00	$11,317,000.00	$ 8,254,000.00
First mortgage gold bonds 4%	—	700,000.00	700,000.00	700,000.00
Bills payable	1,588,000.00	834,000.00	585,000.00	—
Accounts payable and provision for federal taxes	464,000.00	483,000.00	384,000.00	800,000.00
Reserve for contingencies	149,000.00	234,000.00	372,000.00	288,000.00
Capital surplus arising from the redemption and purchase of company's capital stock and bonds at less than par	—	—	—	1,493,000.00
Surplus and undivided profits:				
Balance at January 1st	1,491,000.00	1,582,000.00	1,471,000.00	1,144,000.00
Add profit for year	705,000.00	392,000.00	271,000.00	1,285,000.00
	$ 2,196,000.00	$ 1,974,000.00	$ 1,742,000.00	$ 2,429,000.00
Deduct—Dividends	614,000.00	503,000.00	598,000.00	335,000.00
Surplus at December 31	$ 1,582,000.00	$ 1,471,000.00	$ 1,144,000.00	$ 2,094,000.00
	$15,199,000.00	$15,076,000.00	$14,502,000.00	$13,629,000.00

(1) Depreciation for the year 1928 should be $50,000.00 instead of $25,000.00.

(2) The closing inventories of 1928, 1929, 1930 contain fictitious profits of $20,000.00, $15,000.00, and $30,000.00 respectively, arising from incorrect pricing by the cost department.

(3) Burden charges as follows were entirely omitted from the closing inventories: 1928, $20,000.00; 1929, $30,000.00; 1930, $22,000.00; 1931, $18,000.00.

(4) On July 1, 1929, an issue of ten-year bonds was floated on which the discount amounted to $35,000.00. The entire discount was charged against 1929 profits.

(5) In 1930 the president was paid a bonus of $40,000.00 which had been charged to Profit and Loss and which was found to be apportionable as follows: 1927, $10,000.00; 1928, $20,000.00; 1929, $10,000.00.

(6) In the 1931 closing inventory errors causing a reduction of $28,000.00 had been made.

(7) As of December 31, 1931, unstated liabilities representing merchandise in transit to the amount of $16,000.00 were found.

(8) An allowance of $8,000.00 on 1927 sales was charged against 1928 operations. The letter granting this allowance was dated December 15, 1927.

(9) Cash sales of by-products to the amount of $10,000.00 were made in 1928 and the funds used to purchase motor trucks. No entry, however, had been made upon the books for either the sale or the purchase. No adjustment necessary for depreciation on these trucks.

(10) The company in 1928 ordered from The Foundry Company certain castings. The bills, $14,600.00, came and were entered in Accounts Payable at November 30, 1928, and charged to stores. However, before December 31, 1928, it was discovered that The Foundry Company had made an error and the castings were useless for A. B. Co. production. The Accounts Payable were left on the books at December 31, 1928, but the castings were inventoried at no value. At June 30, 1930, by a court decision the A. B. Co. was obliged to pay the Foundry $2,000.00 in full settlement with interest thereon at 6 per cent from January 1, 1929, to June 30, 1930. The Foundry Company was to keep the castings. The audited vouchers of 1928 were canceled when judgment was paid; all adjustments were posted to the 1930 Profit and Loss account.

5.* A partnership was entered into between A and B on January 1, 1929, with a capital of $45,000, of which A contributed two-thirds and B contributed one-third.

The agreement between the partners provides that in lieu of a salary, B as manager of the business shall be entitled to 20 per cent of the profit arising in the usual course of business; that the partners shall be entitled to interest at the rate of 6 per cent on their respective capital investments at the first of each year, and that the profits remaining after deducting the aforementioned items shall be divided equally between the partners; but that any profit or loss resulting from the sale of the business as a whole shall be divided in proportion to the capital investments at the time of sale.

The partnership had been in existence for three years, and during that time the accounts were kept by single entry; but fairly accurate records were kept of sales and expenses, so as to arrive at the approximate profits. The profits as determined for each year were as follows:

1929	$ 9,000.00
1930	15,000.00
1931	21,000.00

These data were used to determine the commissions to be allowed B, interest on capitals, and profits of partners; also to arrive at the respective capitals of the partners at the first of each year.

The credits and debits to the partners' accounts as shown by the books were as follows:

		A	B
CREDITS:			
1929	Commissions		$1,800.00
	Interest	$1,800.00	900.00
	Profits	2,250.00	2,250.00
1930	Commissions		3,000.00
	Interest	1,923.00	1,077.00
	Profits	4,500.00	4,500.00
1931	Commissions		4,200.00
	Interest	2,128.00	1,412.00
	Profits	6,630.00	6,630.00
DEBITS:			
1929	Withdrawals	2,000.00	2,000.00
1930	Withdrawals	3,000.00	3,000.00
1931	Withdrawals	4,000.00	4,000.00

The partners intend to incorporate, but before doing so they desire a revision of their accounts, as they have doubts regarding the adequacy of their system to give accurate results. After one consultation with you, an accurate inventory is taken and a statement is prepared under your direction, setting forth all known assets and liabilities as of December 31, 1931.

The statement as prepared shows:

ASSETS:		
Cash	$ 2,000.00	
Accounts Receivable	41,650.00	
Inventories	54,350.00	
		$98,000.00
LIABILITIES:		
Notes Payable	$ 5,000.00	
Accounts Payable	14,500.00	
Accrued Rents and Taxes	1,500.00	
		$21,000.00

Given the preceding data, you are required to show:

(1) The net profits for each year, how obtained, and the distribution of same between the partners.

(2) Adjusting entries to correct partners' accounts to December 31, 1931.

(3) Revised accounts of partners, showing credits and charges for each year and capital of each partner at the beginning of the respective years.

NOTE. As it is deemed impractical to go into a detailed examination of the accounts for the three years past, you are to apportion to the several years any increase or decrease in the aggregate profits for the three years on a percentage basis.

In making the adjustments bear in mind that no change is to be made in the system of accounting of the partnership.

6.* In your examination of the Automobile Delivery Truck account of a company, you find the following entries:

Debits		
Jan. 1, 1924, Trucks 1, 2, 3, 4, at $1,200		$4,800.00
July 1, 1924, Truck 5		1,500.00
Aug. 1, 1924, Truck 6		1,500.00
Credits		
Aug. 1, 1924, Truck 2		$ 900.00
Sept. 1, 1924, Truck 4		750.00
Balance Sept. 1, 1924	$6,150.00	

The Reserve for Depreciation for Automobile Delivery Truck account stood credited on January 1, 1924, with $1,800.00.

Upon analyzing the transactions represented by these items, you find the following facts:

(a) Truck 5 purchased July 1, replaced Truck 1, which was discarded. The portion of the reserve for depreciation accumulated on January 1 for Truck 1 amounted to $900. Truck 5 was purchased on open account.

(b) Truck 2 was traded in for $850 on the purchase of Truck 6 costing $1,500.00. The difference was paid in cash. The reserve which had been accumulated for depreciation on Truck 2 on January 1, amounted to $300.00.

(c) Truck 4 was totally destroyed in an accident September 1. The reserve for depreciation on this truck amounted on January 1 to $300.00 and it was insured for $750.00, which was collected in full.

Assume the rate of depreciation to be 25 per cent per year.

Give journal entries which would properly record the above facts and show the balances of all accounts affected, as of September 1, 1924, bringing depreciation reserve up to that date.

IX

1.* A syndicate having invested in a coal property, presents the following balance sheet:

Assets		Liabilities	
Acreage	$1,500,000.00	Capital Stock	$1,000,000.00
Physical Equipment	500,000.00	Bonds, 1st Mtg. 5s	1,000,000.00
	$2,000,000.00		$2,000,000.00

The syndicate estimates it will mine and sell 1,250,000 tons per year, and the life of the mines at this rate will be 25 years.

The surface acreage is not marketable.

It will require $50,000.00 expended annually in additional equipment. This physical equipment will carry only a small salvage value at the end of 25 years.

The bonds are to be called at the rate of $40,000.00 per annum.

At what profit per ton must the coal be sold so that a dividend of seven per cent can be paid yearly on the stock, and leave at the close of business 25 years hence, sufficient convertible assets to pay the stockholders in cash the par value of their stock? Explain.

Make a statement winding up the syndicate's affairs, assuming the general correctness of the estimates.

2. The A Company is starting in business. It is to sell at $100.00 an article which costs it $60.00 delivered at its store. It is estimated that sales will be approximately:

Month	Sales	Month	Sales
1	10 units	7	80 units
2	20	8	85
3	30	9	90
4	40	10	95
5	50	11	100
6	60	12	100

By the eleventh month it is expected that the permanent level of monthly sales in the community will be reached.

It is estimated that the fixed expenses of the store, including salaries of the salesmen, will be $2,500.00 per month. Salesmen are, however, paid 5 per cent of their sales at the time of making the contract. There is a cost of $3.00 for installation of each unit sold which is borne by the A Company. The article is purchased on 60-day credit and sold $40.00 down and $30.00 each month thereafter until paid for. It is deemed advisable that the stock on hand should never fall below 15 units, in order that the show room may look prosperous and that deliveries may be made promptly.

Allowing 20 per cent for unforeseen emergencies, how much cash should the company have for its initial working capital? (The article is of such nature that the $40.00 initial collection on each sale will amply cover any possible losses through replevin.) No money is to be borrowed from the banks.

3. The planned sales of a small-town department store for the month of January, 1930, are $17,625.00. January 1 the inventory of merchandise is $25,562.00 at cost, and goods are on order for delivery early in the month $1,340.00 at cost. It is desired that during January the inventory be reduced to $22,000.00 at cost. All merchandise is priced to allow a gross profit of 40 per cent of the selling price. It is expected that there will be mark-downs during the month amounting to $500.00. It is planned to give away as samples stock costing $250.00. How much merchandise should be ordered for January delivery?

4. The planned net sales of the High Pressure Clothing Company for the year 1930 are $300,000.00. The inventory of merchandise at retail prices December 31, 1929, is $60,000.00. It is desired that the merchandise turnover in 1930 be 6.0. The original marked price of all merchandise is twice the purchase price, but approximately 15 per cent of the merchandise has to be marked down an average of 20 per cent of the original marked selling price. What should be the closing inventory at retail values, and what purchases at cost should the company plan to make during the year?

5.* You are called upon by a Typewriter Company, selling upon the installment plan, to compute the amount of working capital to be required for the year 1932.

Your examination discloses the following facts: The retail price of the machine is $100.00. The cost of material is 40 per cent of the cost of sales; the direct labor is 35 per cent of the cost of sales. Burden does not include selling, administration, or collection expense and loss. Selling expense is 12 per cent of sales; administration expense is 5 per cent of sales; collection expense and loss is an additional 3 per cent of sales. You also find that future labor cost will increase $14\frac{2}{7}$ per cent which will decrease the profit 35 per cent.

Terms of sales are: $10.00 with order and balance in nine equal monthly installments. Estimated sales first month, fifty machines, with increase of fifty machines sold each month up to the fourth month, when 200 machines are sold, with no further increase during the year.

Assume all expenses must be paid during the month in which the sale is made. Prepare schedule showing all essential facts and amount of working capital needed monthly.

6. The planned sales of Department X for the next three months are $85,000.00. Planned marks-down are $1,000.00. When goods are received they are marked up 45 per cent of the sales prices. The opening inventory is $30,000.00 at sales prices. Goods on order for delivery during the three months are $6,000.00 at cost. Planned inventory at the close of the three months is $35,000.00 at selling prices. Calculate the "open to buy."

X

1. From the following data prepare a statement accounting for the change in net profits and for the change in cost of sales.

OAK CORPORATION

STATEMENT OF PROFIT AND LOSS

	1928	1929
Sales	$400,000.00	$420,000.00
Cost of Sales	200,000.00	250,000.00
Gross Profit on Sales	$200,000.00	$170,000.00
Expenses	150,000.00	140,000.00
Net Profit	$ 50,000.00	$ 30,000.00
Units Produced	80,000	85,000

COST OF SALES

	1928	1929
Materials	$ 96,000.00	$100,000.00
Labor	84,000.00	96,000.00
Factory Expense	20,000.00	54,000.00
	$200,000.00	$250,000.00

2.* The Profit and Loss Statement of a manufacturer, whose operations are confined to production of one type of device, shows the following results for the years 1926, 1927:

	1926	1927
Quantity Sold	18,000	21,000
Net Sales	$144,000.00	$189,000.00
Manufacturing Cost	81,000.00	120,750.00
	$ 63,000.00	$ 68,250.00
Selling Expense	18,000.00	23,100.00
	$ 45,000.00	$ 45,150.00
Administrative and General Expense	9,000.00	12,600.00
Net Profit	$ 36,000.00	$ 32,550.00

Having regard to the larger volume in 1927, the manufacturer is disappointed with the result and wishes to know the reasons for the decline in profits. Prepare a statement showing how the net decrease of $3,450.00 is accounted for, presenting your figures so that due consideration will be given to each of the factors and elements.

3. Account for the change in net profit of the Y Corporation:

(a) Assuming that selling prices have been constant.
(b) Assuming that selling prices per unit have increased 5 per cent.
(c) Assuming that the physical volume of sales has decreased 10 per cent.
(d) Assuming that the unit cost of sales has decreased 5 per cent.
(e) Assuming that the unit cost of sales has remained constant.

	1928	1929
Sales	$200,000.00	$210,000.00
Cost of Sales	150,000.00	155,000.00
Gross Profit on Sales	$ 50,000.00	$ 55,000.00
Expenses	27,000.00	34,000.00
Net Profit	$ 23,000.00	$ 21,000.00

4. Show precisely how the costs of manufacture have varied relatively and absolutely from 1929 to 1930 for the X Company. The number of units produced in 1929 was 45,000 and in 1930 49,500.

	1929	1930
Material	$ 94,645.00	$103,240.00
Direct Labor	61,725.00	71,025.00
Indirect Labor	7,239.00	7,653.00
Depreciation	8,528.00	8,940.00
Shop Supplies	1,275.00	2,324.00
Taxes	2,300.00	2,530.00
Superintendence	4,288.00	4,288.00

5. From the following comparative statement of profit and loss, prepare an analysis of the changes which brought about the decrease of net profits.

	1930	1931
Net Sales	$500,000.00	$550,000.00
Cost of Sales	180,000.00	200,000.00
Gross Profit on Sales	$320,000.00	$350,000.00
Selling Expenses		
Advertising	$100,000.00	$150,000.00
Sales Commissions	50,000.00	55,000.00
Traveling Expenses	75,000.00	72,000.00
Sales Office	10,000.00	13,000.00
	$235,000.00	$290,000.00
"Operating Profit"	$ 85,000.00	$ 60,000.00
Net Financial Expenses	20,000.00	10,000.00
Net Profit	$ 65,000.00	$ 50,000.00

Assume that there has been a 10-per-cent increase in the physical volume of sales.

The cost of sales was made up as follows:

	1930	1931
Materials	$ 50,000.00	$ 58,000.00
Direct Labor	90,000.00	100,000.00
Indirect Labor	8,000.00	10,800.00
Depreciation	16,000.00	16,000.00
Factory Supplies	10,000.00	10,200.00
Sundry Manufacturing Expense	6,000.00	5,000.00
	$180,000.00	$200,000.00

6. Use the data in X, 5. Analyze the changes in net profit on the assumption that unit sales prices were cut 10 per cent in 1931 in the hope of increasing sales volume and so swelling profits.

XI

1.* The balance sheets of the Greenleaf Manufacturing Company at December 31, 1930, and December 31, 1931, may be summarized as follows:

	Dec. 31, 1930	Dec. 31, 1931
Goodwill	$ 200,000.00	$ 230,000.00
Land and Buildings	450,000.00	750,000.00
Machinery	200,000.00	400,000.00
Tools	40,000.00	80,000.00
Unexpired Insurance	3,000.00	4,000.00
Inventories	400,000.00	375,000.00
Accounts Receivable	175,000.00	250,000.00
Cash	25,000.00	20,000.00
Investment in Stocks and Bonds	95,000.00	
	$1,588,000.00	$2,109,000.00
Capital Stock	$ 800,000.00	$1,100,000.00
Bonds	350,000.00	500,000.00
Bank and Other Loans	70,000.00	80,000.00
Accounts Payable	145,000.00	125,000.00
Accrued Interest	7,000.00	11,000.00
Accrued Taxes	4,000.00	6,000.00
Surplus	212,000.00	287,000.00
	$1,588,000.00	$2,109,000.00

During the year a dividend of 4 per cent was declared and paid on the stock outstanding at the beginning of the year. $7,000.00 was provided for the depreciation of the buildings, $16,000.00 for machinery, and $4,000.00 for tools. The bonds were sold for par, and the stock was sold at 90 and the difference was charged to goodwill account.

In the light of the above facts interpret the changes that have taken place in the financial position of the company between the two dates and, so far as possible, indicate how they were effected.

2.* You are called in by the First National Bank in order to analyze the statement presented by a new customer applying for credit. Draw up statement of application of funds. No dividends were paid in 1931.

Comparative Balance Sheet follows:

Assets	1931	1930
Real Estate, Building, and Equipment	$ 487,900.00	$ 325,269.00
Cash on Hand	43,078.00	88,981.00
Merchandise Inventory	707,670.00	460,931.00
Accounts and Notes Receivable	796,255.00	578,726.00
Timber and Mineral Lands	201,920.00	210,850.00
Stocks and Bonds	9,549.00	119,670.00
Patents	750,670.00	740,230.00
Total Assets	$2,997,042.00	$2,524,657.00
Liabilities		
Bills Payable	$ 928,765.00	$ 659,430.00
Accounts Payable	159,620.00	94,625.00
Common Stock	1,250,000.00	1,250,000.00
Preferred Stock	138,600.00	293,000.00
Reserve for Taxes	30,000.00	
Surplus	200,000.00	200,000.00
Profit and Loss	290,057.00	27,602.00
Total Liabilities	$2,997,042.00	$2,524,657.00

3.* On December 31, 1920, the condition of the A Company was as follows:

Assets			
Cash			$ 102,870.90
Notes and Accounts Receivable			150,122.53
Inventories and Prepaid Expenses			100,670.29
Investments			5,000.00
Plant and Equipment		$1,033,716.28	
Less Reserve for Depreciation		337,425.93	696,290.35
Total Assets			$1,054,954.07
Liabilities			
Bank Loans		$ 476,595.02	
Trade Acceptances Payable		73,745.93	
Accounts Payable		55,101.66	
Notes Payable		239,400.00	
Total Liabilities			844,842.61
Proprietary Interest			
Capital Stock Outstanding:			
Preferred	$449,400.00		
Common	190,400.00		
		$ 639,800.00	
Less Deficit		429,688.54	
Proprietary Interest			$ 210,111.46

The financial statement of the A Company on December 31, 1921, was as follows:

Assets			
Cash			$ 1,855.97
Notes and Accounts Receivable			188,326.22
Inventories and Prepaid Expenses			42,752.61
Consignments			2,903.60
Plant and Equipment		$1,416,324.67	
Less Reserve for Depreciation		376,109.04	1,040,215.63
Total Assets			$1,276,054.03
Liabilities			
Bank Loans		$ 92,000.00	
Trade Acceptances Payable		23,906.42	
Accounts Payable		255,996.68	
Accrued Interest		15,332.51	
Mortgage Bonds Outstanding		314,200.00	
Debenture Bonds Outstanding		313,000.00	
Total Liabilities			1,014,435.61
Proprietary Interest			
Capital Stock Outstanding:			
Preferred	$449,400.00		
Common	190,400.00	$ 639,800.00	
Less Deficit		378,181.58	
Proprietary Interest			$ 261,618.42

During 1921 there is a credit to Surplus of $1,000 for collection of bad accounts written off in 1918, a credit of $385,159.49 as appreciation of plant due to an appraisal, and a debit of $5,000 as loss on investments. Depreciation for 1921 amounting to $38,683.11 was charged directly against Surplus. The net operating loss may therefore be easily ascertained.

During the year mortgage bonds and debentures were authorized to the amount of $500,000.00 and $350,000.00, respectively.

A duly authorized Committee of Stockholders asks you to prepare a statement showing the disposition of the proceeds of the bonds and debentures issued in 1921. Assume sales of both securities to have been made at par.

Prepare the statement as requested.

4. Prepare a statement of application of funds for the Ash Company.

Balance Sheets

Debits	Dec. 31, 1928	Dec. 31, 1929
Cash	$ 25,000.00	$ 50,000.00
Accounts Receivable	100,000.00	140,000.00
Deferred Charges	2,000.00	1,000.00
Inventories	30,000.00	25,000.00
Investment	100,000.00	50,000.00
Discount on Bonds		5,000.00

Land and Buildings	$100,000.00	$205,000.00
Machinery	150,000.00	182,000.00
Goodwill		100,000.00
	$507,000.00	$758,000.00

Credits

Accounts Payable	$ 80,000.00	$ 95,000.00
Notes Payable	20,000.00	10,000.00
Bonds Payable	100,000.00	200,000.00
Reserve for Depreciation	60,000.00	80,000.00
Reserve for Contingencies		20,000.00
Common Stock	100,000.00	100,000.00
Preferred Stock	50,000.00	100,000.00
Premium on Preferred Stock		5,000.00
Surplus	97,000.00	148,000.00
	$507,000.00	$758,000.00

The surplus account is as follows:

Surplus

1929			1928		
Jan. 15	Pfd. Div.	$ 1,500.00	Dec. 31	Balance	$ 97,000.00
	Com. Div.	10,000.00	1929		
May 5	Loss on Bldg.	6,000.00	June 30	Goodwill	100,000.00
June 30	Reserve for Contingencies	20,000.00			
	Pfd. Div.	3,000.00			
	Com. Div.	2,500.00			
Dec. 31	Operating Loss	6,000.00			

It should be noted further that on May 5 a building which cost $60,000.00 and against which a reserve for depreciation of $30,000.00 had been accumulated, was sold for $24,000.00.

5. Prepare a statement of application of Funds for the Oriental Company.

Assets	Dec. 31, 1930	Dec. 31, 1931
Cash	$ 5,000.00	$ 7,000.00
Notes Receivable	10,000.00	11,000.00
Accounts Receivable	14,000.00	12,000.00
Inventories	25,000.00	20,000.00
Prepaid Expenses	1,000.00	2,000.00
Machinery	40,000.00	38,000.00
Equipment	20,000.00	20,000.00
Investments	15,000.00	20,000.00
	$130,000.00	$130,000.00

Equities

Accounts Payable	$ 10,000.00	$ 15,000.00
Notes Payable	14,000.00	20,000.00
Bonds Payable	40,000.00	20,000.00
Premium on Bonds Payable	400.00	180.00
Capital Stock	40,000.00	50,000.00
Premium on Stock		1,000.00
Reserve for Depreciation	10,000.00	12,000.00
Surplus	15,600.00	11,820.00
	$130,000.00	$130,000.00

You learn that dividends were paid amounting to $4,500.00 during the year. Machinery which cost $10,000.00 and on which depreciation amounting to $4,000.00 had accrued was sold for $5,000.00. Equipment which had cost $5,000.00 and against which depreciation amounting to $3,000.00 had accrued was sold for $1,000.00. The losses on these sales were charged directly to surplus. When the bonds were paid, $200.00 of the premium was transferred to surplus. The $20.00 current amortization of bond premium was treated as a profit and loss item.

XII

1. July 1, 1930, P shipped to Y on consignment fifteen washing machines which cost $60.00 each and which Y was to sell at $105.00 each. P paid packing and transportation charges amounting to $48.60. Upon the arrival of the machines Y paid $9.45 for drayage, and $27.75 for assembling and testing the machines. At the request of P and on his account, Y employed a demonstrator for one week at a cost of $34.50. P recorded the consignment out at cost.

July 31, Y having sold all fifteen of the machines at the agreed price, mailed to P an account sales and a check for the net proceeds, Y's commission being 20 per cent of gross sales.

(a) Prepare the account sales sent by Y to P.
(b) Make all the entries for the consignment on the books of Y.
(c) Make all the entries for the consignment on the books of P:
  (1) Assuming net profits only are taken up and are merged with other profits.
  (2) Assuming net profits are taken up and kept distinct.
  (3) Assuming that gross sales and expenses of consignment are taken up on books and are kept distinct from other sales and expenses.

2. Using the data in problem 1, make the entries for the consignment on the books of P on the assumption that he recorded the consignment out at selling prices for each of the three cases assumed in part (c) of that problem.

3. November 15, 1929, the EverReady Manufacturing Company shipped to the Warsaw Public Service Corporation twenty electric stoves, all of the same size and selling price, namely, $75.00 at retail. They cost $48.00 each. The Public Service Corporation accepted these stoves on consignment, agreeing to sell them at a commission of 25 per cent and to guarantee collections. The Warsaw Public Service Corporation paid for carriage and delivery $36.00. There were three castings broken in transit because of faulty packing. These were replaced by the EverReady Manufacturing Company at a cost of $9.20 for the parts and $1.20 for express. The Warsaw Public Service Corporation repaired the heating units of two of the stoves at a cost of $4.00, but charged the consignor $6.00.

December 15, the Warsaw Public Service Corporation honored a sight draft of the EverReady Manufacturing Company for $350.00.

December 31, the EverReady Manufacturing Company received from the Warsaw Public Service Corporation the following account sale:

The Warsaw Public Service Corporation
in account with The EverReady Manufacturing Company
for 20 TZ Electric Ranges, #3 received on consignment Nov. 15, 1929

Sales to Dec. 31	15@$75.00		$1,125.00
Deduct charges			
Nov. 17 Carriage		$ 36.00	
Repairs		6.00	
Dec. 15 Sight draft		350.00	
Dec. 31 Commission—25% S. P.		281.25	
			673.25
Balance to credit of your account			$ 451.75

The student is to make all the entries concerning this consignment on the books of the EverReady Manufacturing Company up to December 31, including adjusting and closing entries of that date:

(a) On the assumption that consignment profits are to be kept separate.

(b) On the assumption that consignment sales are to be merged with ordinary sales.

Take up net profits only.

4. (a) Using the data of Problem 3, make the entries on the books of the Warsaw Public Service Corporation.

(b) Make the entries on the books of the EverReady Manufacturing Company taking up gross profits, and deducting expenses:

(1) On the assumption that consignment profits are to be kept separate.

(2) On the assumption that the consignment sales are to be merged with the ordinary sales.

5. June 30, 1929, there is a debit balance in the Consignment Ledger Control account of $1,910.00. There is a credit balance in Consignment Sales Account of $2,740.00. The bookkeeper does not know what to do

and asks your advice. You find that there are four accounts in the Consignment Ledger:

Consignment Out—A

1929			1929		
May 15	Mdse	500.00	June 15	Proceeds	210.00
	Freight	60.00			

Consignment Out—B

1929			1929		
April 23	Mdse	840.00	May 8	Draft	300.00
	Freight	45.00	June 2	Net Proceeds	100.00

Consignment Out—C

1929			1929		
June 1	Mdse	750.00	June 15	Draft	375.00

Consignment Out—D

1929			1929		
June 15	Mdse	650.00			
	Freight	50.00			

You learn further that there have been received three account sales as follows:

From A—dated June 14, 1929		
Sales (½ consignment)		$300.00
Less:		
Commission	$ 60.00	
Expenses (applicable to entire consignment)	30.00	90.00
Net Proceeds remitted by check		$210.00
From B—dated June 1, 1929		
Sales (½ consignment)		$600.00
Less:		
Commission	$120.00	
Expenses (applicable to entire consignment)	80.00	200.00
		$400.00
Less:		
Draft honored May 6		300.00
Net due, remitted by check		$100.00
From C—dated June 28, 1929		
Sales (⅓ consignment)		$300.00
Less:		
Commissions	$ 60.00	
Freight (on entire consignment)	40.00	100.00
Total Credit to Consignor		$200.00

No remittance.

You also learn that the consignment accounts are charged with the merchandise shipped at 25 per cent above cost.

Tell the bookkeeper what to do in order to close the books as of June 30 so as to show separately the consignment profit and loss. Assume that the consignees have made no sales and incurred no expense save those reported on their account sales as above.

6. March 1, 1930, you ship on consignment to X 10 radio cabinet sets which cost $75 each. You paid packing and shipping charges $23.50. June 30, 1930, you receive from X an Account Sales:

Sales of 7 radio cabinets@$125.00		$875.00
Less Commission—20%	$175.00	
Cost of refinishing damaged set	1.50	
Special advertising chargeable to consignor	50.00	
		226.50
Check for Balance, herewith		$648.50

Make entries on your books (a) for the shipment; (b) for receipt of account sales; and (c) for taking up the profits in closing the books June 30, 1930.

XIII

1.* On August 20 John Doe put in Richard Roe's store on joint account merchandise amounting to $3,240.00, Roe adding the same amount.

August 25 they buy on joint account merchandise amounting to $9,000.00, each partner paying his share in cash.

August 28 they put into the account $4,000.00. Roe put in of this amount $2,500.00 in merchandise from his store. Doe puts in $1,500.00 in merchandise from his store, and pays Roe $500.00 in cash to share equally in this investment.

September 10 Roe sells on their joint account merchandise amounting to $9,500.00.

On the same date by agreement they withdrew $6,480.00 in merchandise, each one-half $3,240.00.

September 22 Roe sells to John Green on account merchandise amounting to $4,800.00.

October 4 Roe sold to Green & Joyce 50 shares of Merchants' Bank Stock for $5,500.00, and bought of them in part payment merchandise amounting to $5,000.00 for joint account of himself and Doe, each $2,500.00, receiving the balance in cash, $500.00.

October 25 they agreed to close their speculation and joint account and they each take delivery of one-half the merchandise remaining unsold. Total amount unsold $5,000.00.

Write the journal entries necessary to present these transactions on Roe's books.

Prepare ledger account. Roe charges commission on sales 2½ per cent., remits Doe one-half net proceeds in cash.

Show journal entries closing the ledger account on Roe's books.

2.* A.B. & Co. agreed with C.D. & Co. that the latter shall ship on consignment to Honolulu on joint account 20 cases of commodity "X," the invoice price of which is $2,100, less 2½ per cent. A.B. & Co. pay the packing charges, $25; also freight, insurance, and other charges, $90; and they draw on their correspondents in Honolulu in advance for $1,600 at 90 days, which is discounted at a cost of $20, and the proceeds handed to C.D. & Co. as part payment. These transactions may be dated March 1st, 1930. On the 30th of November, 1930, A.B. & Co. receive the account sales and net proceeds, $418, and they then pay C.D. & Co. the balance due to them.

Prepare a Joint Consignment Account charging interest on the amount lying out at 5 per cent per annum for eight months, closing it by dividing the loss. Also prepare an account to be rendered by A.B. & Co. to C.D. & Co. closed by payment of the balance, and prove that the losses borne by each are equal.

3.* A and B entered into a venture in flour, agreeing to share profits and losses equally.

A supplied 2,000 sacks of flour at $5.00 per sack, which were consigned to C on June 25, 1914.

A drew on B at three months' date from July 1, 1914, for the price of the flour, A discounting the note at his own bank and paying the discount charges, $150.00.

On June 30 A paid in connection with the shipment of the flour:

Insurance Premium	$100.00
Loading Charges	150.00
Freight	500.00

C disposed of 1,000 sacks of flour at $7.50 a sack, and he granted a note in favor of A at one month's date from August 1 for the amount, less his commission of 5 per cent.

On August 7, 1,000 sacks of flour were reshipped by C to B, who sold them at an average price of $10.30 per sack, and received a commission of 5 per cent for his trouble.

B made the following disbursements on August 20, 1914:

Freight and Insurance	$250.00
Landing Charges	150.00

On August 31, 1914, A sent a check to B for the balance due to the latter, including his share of profit on the transaction.

Disregard Interest on the account. Prepare a Profit and Loss Account of the transactions and also the account of B on A's books.

4.* (a) In connection with your general merchandise business, you are a managing partner on a joint account, where your one-half of merchandise cost was $15,000.00. Charges posted $150.00, Total Sales $8,000.00, and

Joint Unsold Merchandise $13,500.00. Settlement charges were: Storage $60.00, Commission 5 per cent on Sales.

Prepare ledger account, and show journal entries closing the account on your books, you giving your partner, Robert Bailey, your note for his one-half of net proceeds.

(b) Suppose your one-half first cost was $10,000.00. Charges were $9,000.00; Sales $4,500.00; Storage $20.00; Joint Property Unsold $2,100.00; Commission 5 per cent.

Prepare ledger account, and show journal entries closing the account on your books, charging Bailey with his share of the deficiency.

5.* Wilson, who lives in Minneapolis, and Marshall, in Chicago, enter into an agreement to deal in California Dried Fruits on joint account. The Pacific Coast Products Co. ships ten cars of apricots to Minneapolis and three cars to Chicago.

The Pacific Co. draws on Chicago for $35,000.00 against the entire shipment when they ship the last car, and bills Marshall for $4,872.10 for the balance, based on the public warehouseman's count of boxes unloaded at the destination. Assume that there are 1,000 boxes in each car.

Wilson pays $3,010.21 freight and $13.20 demurrage, and 1¾¢ per case for unloading and storage. He received a check from Marshall for $2,500.00 on account. He sells and bills the goods in the name of Marshall, the latter receiving $39,800.00 net from the buyers. The cars billed to Chicago are diverted to Peoria, where Marshall's broker disposes of them for $9,500.00, and after paying freight, cartage, cooperage, and other charges of $908.70 remits to Chicago, but not until he has deducted commission of 3 cents per box.

Each party to the contract is entitled to a commission of 4 cents per box for selling the goods out of which he is to pay the fees of any brokers engaged by him; and it is further agreed that Marshall shall receive $175.00 in lieu of interest on his excess cash advances. The speculators share profits or losses 50-50.

Wilson renders a statement to Marshall taken from his own books, and then Marshall renders a statement to Wilson. Prepare these statements and include in them any remittance or remittances necessary to adjust the accounts between the parties concerned.

XIV

1.* The Good Music Company sells pianos on the installment basis. On January 2, 1924, Jones purchased a piano from the company for $375.00, to be paid for as follows: $25.00 down and the balance in quarterly installments of $50.00 each, bill of sale to be given on date of final payment. The piano cost the company $125.00. The four installments for 1924 were duly received, the last one having been paid on December 31st.

(a) Set up the proper ledger accounts covering this sale and the payments thereon.

(b) Give the journal entry (at the close of the year) by which the year will be credited with its proper proportion of the profit on this transaction.

2.* The Good Music Company, organized in 1929, makes installment sales amounting to $20,000.00 during the year. The gross profit is 50 per cent based on sales price. During the year installments amounting to $5,000.00 were collected. Instruments of a sales price of $500.00 were taken back from customers after payments of $100.00 had been made thereon.

Record the transactions so that the books will show the gross income in accordance with the income tax regulations.

3. The following data are taken from the books of the Z Company:

	1929	1930
Sales, Installment	$150,000.00	$180,000.00
Cost of Sales, Installment	75,000.00	100,000.00
Collections of Installment Sales		
on 1929 sales	100,000.00	40,000.00
on 1930 sales		110,000.00

Required balance of account Deferred Profit on Installment Sales after closing Books December 31, 1930. Assume that there is only one account for Deferred Profit on Installment Sales.

4.* The A and B Company is engaged in the retail business of musical merchandise. The majority of the sales consist of installment sales of pianos and talking machines on which the initial payment is less than 25 per cent of the sale price and the balance payable in monthly installments over a period of three to five years. The company was incorporated and began business on January 1, 1929. The following schedules are submitted on the various classes of merchandise:

	Sales		
Year	Piano Installment Sales	Machine Installment Sales	Other Merchandise Sales
1929	$148,650.00	$ 92,475.00	$ 38,337.60
1930	163,520.00	88,535.00	39,543.50
1931	180,400.00	94,256.00	40,731.15
	Purchases		
1929	106,322.37	67,432.18	27,108.88
1930	120,987.41	55,116.92	27,224.35
1931	140,125.25	60,013.22	27,469.33
	Inventories, December 31		
1929	20,013.14	10,248.31	8,323.64
1930	32,105.86	15,012.83	15,299.41
1931	39,294.44	18,144.77	13,521.31

Attention is called to the fact that "Other Merchandise Sales" are sales for cash or credit not on installment plan.

No adjustments to Deferred Income account are made until the end of the year. Additions to this income are made at the end of the year on the basis of the balance due on the current year's installment sales, and deductions are made on the basis of cash received during the current year on installment sales of previous years. The unpaid balances on December 31, 1931, on 1931 piano installment sales amount to $110,425.50, and on 1931 machine installment sales amount to $60,475.00, exclusive of accrued interest. The following amounts were received during the year 1931 on installment sales of previous years:

On 1929 piano installment sales	$30,285.00
On 1930 piano installment sales	42,413.00
On 1929 machine installment sales	25,386.00
On 1930 machine installment sales	26,285.00

The above amounts are exclusive of interest, which is credited direct to interest revenue.

Fractional percentages may be disregarded in computation of ratios—over one-half of one per cent to be added and less than one-half of one per cent to be dropped.

Uncollectible balances on 1929 machine installment sales amounting to $399.00 were charged to expense on the books of the company and credited to Installment Sales Contracts.

Make the adjustments to Deferred Income account as of December 31, 1931.

Show what gross profit is to be reported for 1931, including deferred income taken up for that year.

5. The Liberty Furniture Company sells furniture on the installment plan, a first payment of 10 per cent being required before delivery.

June 1, 1930, it pledges to the Hardboiled Finance Corporation under the non-notification plan installment accounts receivable amounting to $15,000.00 at the time of pledging, on the following terms:

The Finance Corporation advances 75 per cent of the accounts pledged.

All collections whatsoever made of the pledged accounts by the Liberty Furniture Company are to be turned over to the Finance Corporation until the entire loan has been repaid, including interest and service charges.

The Liberty Furniture Company is to pay the Finance Corporation a commission of $500.00 in advance for making the loan and, in addition, one per cent per month of the amount of the loan as measured by the balance at the first of the month. This one per cent is one-half interest and one-half service charge.

When the entire loan has been paid with all charges, the pledged accounts are to be returned to the Liberty Furniture Company.

Collections on the pledged accounts are as follows: During June, $1,500.00; July, $1,500.00; August, $3,000.00; September, $3,000.00; October, $2,500.00; November, $2,500.00; December, $1,000.00.

(a) Make the proper entries on the books of the Liberty Furniture Company for the pledging of the accounts and the borrowing of the money, for the collections of the accounts and the turning over of the collections to the Hardboiled Finance Corporation, for the payments of charges to the Finance Corporation, and for the return of the pledged accounts.

(b) Make the entries on the books of the Hardboiled Finance Corporation for all transactions arising out of the loan.

For brevity, assume that all collections and all payments are made on the last day of the month in which they occur.

XV

1.* A branch office business was started the first of the year, the head office advancing $5,000.00 in cash. During the first year merchandise was shipped to the branch invoiced at $75,000.00.

An auditor checking up the branch business at the close of the year, finds the following:

> Merchandise sales were $60,000.00 with selling price of goods 20 per cent advance on invoice.
>
> Proper vouchers were on file duly receipted for the following payments:

Rebates and allowances on damaged goods sold	$ 1,500.00
Salaries and other expenses	4,500.00
Freights	2,500.00

> The books also showed:

Remittances to head office	$35,000.00
Uncollected accounts	15,000.00

The balance of the sales having been realized in cash less rebates and allowances as noted.

> The cash on hand and inventory of unsold goods, together with the foregoing records, properly accounted for everything.

In journal form make summary entries to show the transactions on the books of the branch, and to close the books of the branch.

In journal form make summary entries to show the transactions with the branch as they would appear on the books of the head office, and to take up the branch profit or loss.

Assume (a) that goods were invoiced to the branch at cost; and (b) that goods were invoiced to the branch at 20 per cent over cost, but that the branch manager did not know the per cent of margin.

2.* A Company with Head Office in Chicago and factory at South Bend, Indiana, conducts three selling branches in New York, San Francisco, and Montreal, which are supplied with goods from the factory, the invoices being sent out from the Head Office.

The branches keep their own sales ledgers, send out monthly statements to customers, and receive cash against their ledger accounts which they remit weekly to Chicago.

All branch expenses, including salaries and wages, are paid by the branches from petty cash accounts, kept at fixed balances of $500.00 each, by draft on Head Office.

The following information is supplied by the branches for December 31, 1930, summarizing the transactions of the previous six months:

	New York	San Francisco	Montreal
Rents and Taxes paid	$ 200.00	$ 175.00	$ 75.00
Sales for 6 Months to December 31	12,500.00	11,800.00	10,225.00
Salaries and Wages	1,650.00	1,520.00	1,600.00
Return Sales	200.00	100.00	250.00
Allowances to Customers	50.00	40.00	30.00
Bad Debts		125.00	60.00
Cash Sales	6,250.00	5,380.00	6,100.00
Cash Received from Customers on Ledger Accounts	10,850.00	10,260.00	9,150.00
Debtors, July 1, 1930	5,820.00	6,140.00	7,240.00
Debtors, December 31, 1930	7,220.00	7,415.00	7,975.00
Petty Cash on hand July 1, 1930	500.00	500.00	500.00
Petty Cash on hand December 31, 1930	500.00	500.00	500.00
Stock, July 1, 1930	3,450.00	3,820.00	3,650.00
Stock, December 31, 1930	4,300.00	4,720.00	4,500.00
Goods Received from Head Office Factory	11,500.00	10,240.00	10,350.00

From these details prepare Branch Accounts as they should appear in the Head Office books, and draw up a final General Trial Balance with Branch Profit and Loss Accounts.

3. The Blank Machinery Company maintains a London Branch to which it ships machinery for sale on the British Isles. Machinery so shipped is charged to Shipments to London Branch and credited to Inventory of Finished Stock at cost. The cost of the machinery thus shipped in 1930 was $292,080.00. Freight and insurance is paid by the branch. January 1, 1930, the London Branch Control Account showed a debit balance of $97,260.00, which balance remained unchanged throughout the year. Dollar exchange is purchased by the branch and remitted to the Home Office about once in three months. When these drafts are cashed the bookkeeper at the Home Office debits Cash and credits Remittances from London Branch. During 1930 the London Branch purchased drafts as follows:

April 1,	£10,000 @ 4.86
June 30,	15,000 @ 4.865
September 30,	15,000 @ 4.87
October 31,	10,000 @ 4.875
December 15,	12,000 @ 4.870

When shipments from the Home Office are received, the bookkeeper at the London Branch debits Shipments from Home Office and credits Home Office Control for the value of the machinery as billed converted at the current rate of exchange.

During 1930 the average rate of exchange was $4.868. January 1, 1930, the rate was $4.863. January 1, 1925, when the furniture was purchased, the rate was $4.71. December 31, 1930, the rate was $4.871.

The trial balance of the London Branch December 31, 1930, was:

Home Office Control		£ 80,000
Remittance Account	£ 62,000	
Accounts Receivable	20,000	
Cash	10,000	
Furniture and Fixtures	2,000	
Inventory of Merchandise (January 1)	8,000	
Sales		100,000
Shipments from Home Office	60,000	
Expenses	18,000	
	£180,000	£180,000

The Branch inventory December 31, 1930, was £10,000.

(a) Make the adjusting and closing entries on the books of the London Branch.

(b) Make on the books of the Home Office the entries necessary to take up the profit or loss of the London Branch for the year and to adjust the London Branch Control Account.

4.* The X Y Z Company is a company operating several retail branch units. The accounting records of the Company as a whole as well as for the branches are maintained in a main office. Each branch is treated as a unit, and the ordinary branch controlling account system is used.

You are called upon to make an audit for the year of 1931 after the bookkeeper has closed the books. During the audit you discover that there has been considerable confusion in the transfer of automobiles and trucks from branch to branch during the year. In most cases entries were not made to record the transfers.

The facts are as follows:

(1) Truck No. 10 was transferred from Branch "A" to Branch "D."

(2) Ford Touring Car No. 3 was taken from Branch "A" and traded for Ford Roadster No. 13 which was kept at the main office.

(3) Ford Roadster No. 12 was purchased for Branch "A" but the charge was made to Branch "B" in error.

(4) The cash paid in the trade for Ford Roadster No. 13 was charged to Branch "C" in error.

(5) Ford Roadster No. 7 was transferred to Branch "C" from Branch "D."

(6) Truck No. 11 was taken from Branch "B" to the main office for repair. It was to be taken to Branch "A" later.

(7) Ford Roadster No. 4 was purchased for Branch "B" but the payment was charged to the main Auto Account in error.

(8) In a few cases repair bills were charged to the Auto Accounts.

(9) Depreciation rate was 20 per cent for all autos.

You are given the accounts pertaining to the Autos and Trucks and are asked to prepare:

(1) The correcting Journal Entries as of January 1, 1932.

(2) The corrected Trial Balances of the five ledgers using the accounts given in the accompanying ledgers which are now in balance.

Note: Disregard Profit and Loss in the corrections; that is, if necessary to make adjustments, use the proprietary accounts direct.

GENERAL OFFICE LEDGER

Automobile Account

1931	May 15, Ford R. No. 4	$ 300.00
1932	Jan. 1, Ford R. No. 2	200.00
	Jan. 1, Buick Roadster No. 14	351.75
	Jan. 1, Trailer No. 16	12.00

Reserve for Depreciation—Auto Account

1931	Dec. 31	$ 60.00

Branch "A" Account

1931	Dec. 31, Balance	$1,838.73

Branch "B" Account

1931	Dec. 31, Balance	$5,170.70

Branch "C" Account

1931	Dec. 31, Balance	$ 513.50
1932	Jan. 1, Cash in Trade	50.00

Branch "D" Account

1931	Dec. 31, Balance	$ 688.02

Proprietary Interest

1932	Jan. 1	$9,064.70

BRANCH "A" LEDGER

Auto Account

1931	Jan. 1, Ford Tour. No. 3	$ 412.83
	Mar. 31, Repairs	59.37
	June 1, "Men" 1¼-ton No. 10	1,826.21

Reserve for Depreciation—Auto Account

1931	Dec. 31	$ 459.68

The X Y Z Company

1931	Dec. 31, Balance	$1,838.73

BRANCH "B" LEDGER

Auto Account

1929	Jan. 1, Rep. Truck No. 1	$2,071.41
1931	June 1, "Men" 1¼-ton No. 9	1,824.59
	June 1, "Men" 1½-ton No. 8	2,011.55
	June 15, International No. 11	1,111.49
	June 20, Repairs	45.37
	June 30, Ford R. No. 12	384.66
	June 30, Trailer No. 15	50.00

Reserve for Depreciation—Auto Account

1929	Dec. 31	$ 414.28
1930	Dec. 31	414.28
1931	Dec. 31	1,499.81

The X Y Z Company

1931	Dec. 31, Balance	$5,170.70

BRANCH "C" LEDGER

Auto Account

1931	June 1, Ford Truck No. 5	$ 640.00
	June 15, Repairs	1.88
1932	Jan. 1, Cash on Ford R. No. 13	50.00

Reserve for Depreciation—Auto Account

1931	Dec. 31	$ 128.38

The X Y Z Company

1931	Dec. 31, Balance	$ 513.50
1932	Jan. 1, Cash in Trade	50.00

BRANCH "D" LEDGER

Auto Account

1930	Jan. 1, Ford Truck No. 6	$ 606.52
	Jan. 1, Ford R. No. 7	540.18

Reserve for Depreciation—Auto Account

1930	Dec. 31	$ 229.34
1931	Dec. 31	229.34

The X Y Z Company

1932	Dec. 31, Balance	$ 688.02

5.* The following Trial Balance at December 31, 1930, is taken from the books of The Universal Manufacturing Company of Columbus, Ohio. The Company has a factory at Cleveland, Ohio, and a branch sales office at New York.

	Debits	Credits
Cash	$ 2,000.00	
Accounts Receivable	130,000.00	
Notes Receivable	5,000.00	
Finished Goods, Inventory at Columbus January 1, 1930	200,000.00	
Finished Goods from Factory at Cleveland	600,000.00	
Cleveland Factory Controlling Account	276,000.00	
Officers' Salaries	40,000.00	
Office Salaries	12,000.00	
Office Expense and Stationery	5,000.00	
Shipping Labor	5,000.00	
Shipping Supplies	5,000.00	
Advertising	40,000.00	
Salesmen's Salaries	25,000.00	
Salesmen's Expenses	30,000.00	
Cash Discounts Allowed	5,000.00	
Cash Discounts Earned		$ 8,000.00
Interest Paid	4,000.00	
Sales[a]		900,000.00
Surplus		176,000.00
Capital Stock		700,000.00

Land	$ 20,000.00	
Building—Factory	200,000.00	
Machinery and Tools	500,000.00	
Office Fixtures	10,000.00	
Factory Fixtures	25,000.00	
Goodwill	24,000.00	
Repairs—Office Fixtures	1,000.00	
Freight In	5,000.00	
Freight Out	10,000.00	
Returns and Allowances	3,000.00	
Interest Earned		$ 1,000.00
Notes Payable		60,000.00
Accounts Payable		137,000.00
Reserve for Depreciation		200,000.00
	$2,182,000.00	$2,182,000.00

*Note: Sales includes shipments to New York Office amounting to $200,000.00.

Inventories at Columbus, Ohio:

Finished Goods at Actual Manufacturing Cost	$250,000.00
Advertising	1,000.00
Office Stationery	300.00
Accrued Interest—Notes Receivable	300.00

You are to make provision for the following:

Bad debts to be written off		$ 1,000.00
Accrued Interest—Notes Payable		300.00
Depreciation:		
Buildings	3%	
Machinery and Tools	10%	
Factory Fixtures	10%	
Office Fixtures	10%	

The factory at Cleveland, Ohio, furnishes you with the following Trial Balance at December 31, 1930:

	Debits	Credits
Raw Material, Inventory, January 1, 1930	$ 75,000.00	
Work in Process, January 1, 1930	100,000.00	
Raw Materials Purchased	300,000.00	
Productive Labor	190,000.00	
Non-productive Labor	115,000.00	
Insurance	10,000.00	
Taxes	4,000.00	
Heat, Light and Power	25,000.00	
Repairs—Machinery	25,000.00	
Repairs—Building	6,000.00	
Manufacturing Supplies	6,000.00	
Cost Department Salaries	12,000.00	
Factory Stationery	3,000.00	
Miscellaneous Factory Expense	5,000.00	
Finished Goods charged to Columbus, Ohio, at Estimated Cost		$600,000.00
Columbus Controlling Account		276,000.00
	$876,000.00	$876,000.00

Inventories at Cleveland, Ohio, at December 31, 1930, at actual manufacturing cost:

Raw Materials	$100,000.00
Manufacturing Supplies	1,000.00
Work in Process	150,000.00
Prepaid Insurance	1,000.00

You are to make provision for the following accruals unpaid December 31, 1930:

Productive Labor	$ 4,000.00
Non-productive Labor	2,000.00
Taxes	3,000.00

The New York Office furnishes you with the following Trial Balance at December 31, 1930:

	Debits	Credits
Cash	$ 1,000.00	
Accounts Receivable	59,000.00	
Purchases from Columbus at Selling Value	200,000.00	
Sales		$150,000.00
Columbus—Controlling Account		110,000.00
	$260,000.00	$260,000.00

Note: All expenses paid by Home Office.

The inventory of Finished Stock on hand at December 31, 1930, amounted to $50,000.00, the manufacturing cost of which was $25,000.00.

The Accounts Receivable shown on the Columbus Books includes $110,000.00 due from the New York Office.

You are requested to prepare:

(1) Balance Sheet
(2) Profit and Loss Statement
(3) Manufacturing Statement.

XVI

1.* James Brown and Enos Russell own adjoining tracts of land near a new industrial development. Brown has 200 acres fronting on highway, Russell has 250 acres in the rear of Brown's tract, and less valuable for home sites. All the land is in cultivation. They decide to subdivide and sell building lots. In order to raise capital for this purpose Brown borrows $20,000.00 and Russell borrows $25,000.00, both loans being secured by mortgages on the land. They arrange with a real estate operator, Samuel Howard, who advances $5,000.00 for expenses and agrees to dispose of the lots for a commission of one-seventh of the profits, Brown and Russell to divide the remaining profit 60 per cent to Brown and 40 per cent to Russell. The holder of the mortgages had loaned on the land as farming land, both tracts being of equal value for agricultural purposes, and he agreed to release the mortgages as to any lots purchased provided proportional amounts of loan were paid off. On this basis he also agreed to release mortgages on portions of land required for streets, alleys and parks in consideration of payment out of first receipts of $18,000.00 on account of mortgages.

After laying out streets, alleys, and parks, there remained 1,200 lots in Brown's tract and 1,800 lots in Russell's tract, all of same size, but priced to sell as follows:

Brown's tract:		Russell's tract:	
300 Lots at	$220	600 Lots at	$150
400 Lots at	185	700 Lots at	100
500 Lots at	120	500 Lots at	80

Sales are made for cash as follows:

Brown's tract:		Russell's tract:	
50 Lots at	$220	210 Lots at	$150
400 Lots at	185	400 Lots at	100
140 Lots at	120	300 Lots at	80

Cash was received in full, and proportional payments to release mortgages have been made.

To date $65,000.00 has been spent in plats, surveying, advertising and other expenses. Value of plats and other prepaid expenses is agreed by all concerned as being $9,000.00.

Brown had paid $160 an acre for his land and Russell had paid $240.00.

Make entries in summary journal form for all transactions as described.

What is amount of profit to date for each of the three men, and what amount has been paid the mortgagee for releases?

NOTE: Assume a partnership is formed which takes up the land and the mortgages on its books, Brown and Russell each having placed his land in joint title.

2.* A and B form a partnership for the purpose of erecting houses for sale. On January 1, 1927, A contributes to the partnership lumber valued at $3,000.00 and cash in the amount of $900.00, while B contributes four lots valued at $1,350.00 each, and cash in the amount of $400.00. On the same day they execute to the bank four six-month six-per-cent joint notes for $5,000.00 each. The lots, lumber, and cash are turned over to a contractor with whom an agreement is entered into for the erection of four houses.

The partnership agreement provides that A and B are to share profits and losses equally.

On April 10th, A withdraws from the contractor $420.00.

On May 30, 1927, the four houses are completed, and on that date one of the houses is sold to C who assumes the payment of one of the notes mentioned above and pays in cash $2,500.00. The contractor withholds $150.00 as his commission for making the sale, and advises the partners that he has cash remaining amounting to $4,230.00. A and B decide to dissolve the partnership, A to take one of the houses and assume one of the notes and B to take two of the houses and assume payment of two of the notes.

How should the $4,230.00 in cash be distributed between A and B?

3.* George R. Street is engaged in the Real Estate, Loans, and Insurance business as a sole proprietor, and his net worth is upwards of $50,000.00. He enters into an arrangement with H. L. Ranney and John Sterns, whereby the three are to purchase a parcel of ground and erect buildings for sale or rent.

Contributions of capital and distributions of profits are to be equal. Record the following transactions on the books of Mr. Street:

George R. Street takes title to 100 feet of land at 2233-35 Fairfax Avenue from Mr. Henry Proctor for a consideration of $5,000.00. He pays Mr. Proctor $500.00 cash and gives back a mortgage on the property at 2233 for $2,250.00 and on 2235 for the same amount. He pays $44.80 for bringing down the abstract and for recording fees. He pays $25.00 for survey. He sells a ten-foot strip off the back of the property for $650.00 cash. Twin houses are erected on the remaining property at a cost of $5,107.00 each, by Mr. John Sterns. A mortgage of $4,000.00 is executed by the three partners jointly on each of the pieces of property, and the proceeds are turned over to Sterns in part payment of his contract for the erection of the houses. The mortgagee, however, deducts $27.30 Insurance Premium on the two houses before turning over the proceeds. In addition, Street pays Sterns $1,000.00 in cash.

Sterns renders a bill for a garage and extras on the property at 2235, of $679.70.

Mrs. Elsie Hemple purchases the property at 2235 for $9,335.00, paying $200.00 earnest money.

Ranney and Sterns pay $750.00 each to Street, who pays off the original mortgage of $2,250.00 on this property. Mrs. Hemple then assumes the $4,000.00 mortgage on the property including interest amounting to $78.67, and gives back a second mortgage of $3,800.00. She is given credit for $20.00 on a change made in a radiator, and in closing the deal she pays a further sum of $1,236.33 in cash.

Disregard Interest on Joint Account Advances. It is not required that the profit on the property sold should be calculated or that separate accounts should be opened for the respective pieces.

After recording these transactions on the books of George R. Street, (1) draw a Trial Balance of the syndicate transactions, and (2) show what amount should be paid by one or more members of the Joint Account deal to others to equalize their respective investments.

4.* On January 15, 1908, AB and five others acquired a tract of land containing 500 acres at a cost of $50,000.00. They incorporated March 1, 1908, as The Valley Realty Company for the purpose of acquiring, subdividing, and selling this tract for residence purposes, the Company having 5,000 shares of No-Par-Value Capital Stock and a Declared Common Capital of $50,000.00. The land was turned in to the Company by AB and his associates for 2,000 shares, the value placed thereon being $120,000.00. The remaining 3,000 shares were sold for cash in the aggregate amount of $180,000.00.

A landscape architect was engaged, and in accordance with his advice sales of lots were not made until beginning March 1, 1918. It was found that errors in early development work had caused the Company to borrow $30,000.00 at 6 per cent on March 1, 1917, the loan secured by mortgage on the entire property.

The sales contracts with purchasers of lots provide that the Company will maintain the allotment park and driveways in perpetuity, and to insure this a fund is to be created for the permanent maintenance and care of the park and driveways, the estimated annual expense of which is $6,000.00. It is agreed with purchasers of lots that one-third of all cash received from sales shall be invested in bonds to yield 4 per cent, until enough has been so invested as will meet the annual expense referred to. It is further agreed that when all lots are sold the bonds will be turned over to a Board of Trustees, elected by lot-owners, who are to manage the parks and driveways.

You, as an accountant representing the estate of AB who died March 1, 1924, are requested to audit the Company's books; and you find that the tract had been divided into 400 lots of different sizes, but all of the same selling price, and that on February 28, 1924, there were 40 lots unsold. You find that the Company has been following the practice of paying 5 per cent commission to its salesmen upon collection in full for sales made; that at January 1, 1924, when there remained 50 lots unsold and in order to hasten the sale thereof, contracts had been entered into for additional improvements to cost $10,000.00 not yet made at February 28, 1924, these improvements benefiting only the unsold lots. An inspection of the Minute Book showed a dividend of $1.00 per share declared February 25, 1924, payable March 15, 1924. You also find that Accounts Receivable for Sale of Lots represents the unpaid balances of sales which amounted to $200,000.00.

You draw off two trial balances as follows:

Debits—

	March 1, 1918	Feb. 28, 1924
Cash	$ 6,000.00	$ 102,000.00
Accounts Receivable for Sale of Lots		100,000.00
Bonds Owned		100,000.00
Real Estate	120,000.00	120,000.00
Improvements	160,000.00	160,000.00
Improvements Replaced	30,000.00	30,000.00
General Expense	14,000.00	134,000.00
Park and Driveway Maintenance		36,000.00
Dividends Paid		430,000.00
Total	$330,000.00	$1,212,000.00

Credits—

Capital	$300,000.00	$ 300,000.00
Sale of Lots		900,000.00
Bond Interest Earned		12,000.00
Mortgage	30,000.00	
Total	$330,000.00	$1,212,000.00

From the foregoing data prepare journal entries, Profit and Loss Account for the period, and Balance Sheet as of February 28, 1924. No provision is to be made for Deferred Income on Uncollected Accounts or for federal taxes, it being expected, however, that all other properly deferred or accrued items will be set up for which the information is available.

5.* As on January 1, 1915, a corporation is formed for the purpose of acquiring and conducting a cemetery, and starts business on that date with a capital stock of $100,000.00 paid for in cash. The company first purchases forty acres of land within easy access of a large city, paying for same at the rate of $1,000.00 per acre. It proceeds to expend considerable sums of money in the purchase and planting of trees and shrubs, laying out drives and pathways, sodding, building of glass houses, etc. The policy of the company is to withhold the selling of burial lots until after January 1, 1925, so as to allow the trees and shrubs to become more fully grown and in the expectation that with the growth of the city their property will become more valuable. In the year 1925 the company commences selling burial lots, and all are sold under a special provision whereby the company agrees to apply fifty per cent of all cash received on sales to the purchase of four-per-cent bonds until a total of $150,000.00 of such bonds shall have been so purchased. The agreement further provides that after all lots have been sold the company will wind up its affairs and the above bonds amounting to $150,000.00 shall be given to the city which shall use the income of such bonds for keeping up the cemetery. It is the custom of the company not to purchase bonds until after the close of each fiscal year and after the total sales of that year have been determined. In March, 1930, the directors of the company find that, while they believe the books to be in balance, no proper entries have been recorded showing total cost of their investment, and that no entries have been made with respect to the fund of $150,000.00 from which said bonds are to be purchased. While cash dividends have been declared and paid, the directors are in ignorance of what their profits actually have been and how much of the dividends so received have been out of their profits and how much in the nature of liquidating dividends, representing a return of their original investment. They therefore employ a certified public accountant to determine all these matters and to make the necessary entries on their books and render report to them. After determining the clerical accuracy of the books, the accountant draws off the two trial balances given below and from them prepares the necessary entries and obtains the information required by the directors.

Trial Balances

	Jan. 1, 1925	Jan. 1, 1930
Debits:		
Real Estate	$ 40,000.00	$ 40,000.00
Improvements	45,000.00	45,000.00
Bonds		125,000.00
Administration Expense	20,000.00	46,000.00
Upkeep of Cemetery		45,000.00
Dividends Paid		130,000.00
Cash	7,000.00	40,800.00
	$112,000.00	$471,800.00
Credits:		
Interest account representing interest at 4 per cent on unexpended cash during development period	$ 12,000.00	$ 12,000.00
Bond Interest Account		9,800.00
Sale of Lots		350,000.00
Capital Stock	100,000.00	100,000.00
	$112,000.00	$471,800.00

An inventory of their unsold lots as on January 1, 1930, shows that they have ten acres left unsold of equally desirable character with that already sold. Draw up entries, prepare profit and loss account for period and balance sheet as on January 1st, 1930, in the same manner as if you had been the accountant engaged. In any interest calculation use four-per-cent simple interest.

XVII

1.* From the following data give two hourly rates of burden for each department which might be charged to the product manufactured during the period. Which is preferable and why?

	Dept. A	Dept. B	Dept. C
Total Indirect Expenses	$ 4,200.00	$2,400.00	$ 2,800.00
Productive Hours Chargeable to Jobs	8,000	5,000	10,000
Capacity Productive Hours	12,000	6,000	14,000

2.* (a) From the following data explain and illustrate four methods of distributing the indirect expenses of a factory to production:

	Dept. A	Dept. B	Dept. C
Materials Used	$10,000.00	$5,000.00	$ 5,000.00
Productive Wages Paid	3,200.00	2,500.00	3,500.00
Indirect Expenses	4,000.00	2,500.00	2,800.00
Productive Labor Hours	8,000	5,000	10,000

The factory is supposed to run 2,400 hours a year.

(b) Apply the results obtained in (a) to the facts given below for Job No. 10, in order to show the different total job costs obtained by each of the methods. Assume the labor (value and time) and materials chargeable to Job No. 10, to be as follows:

	Dept. A	Dept. B	Dept. C	Total
Material	$1.00	$2.00	$1.00	$4.00
Labor Value	1.60	1.50	1.05	4.15
Labor Hours	4	3	5	12

3. From the following data prepare a table to show how the service department expenses should be distributed to the producing departments. Also draft the entry or entries necessary to make this distribution. Also determine the rate for applying Manufacturing Expense for each producing department.

Dept.	Function	Expense Current Month	Area Occupied	Employees Average	Direct Labor Hours	H.P.H. ÷1,000
A	Maintenance	$ 5,400.00	400 sq. ft.	3		
B	Personnel	800.00	200	2		
C	Power	15,000.00	800	6		
D	Planning	1,000.00	250	4		
X	Producing	14,000.00	3,250	25	3,700	565
Y	Producing	12,800.00	6,500	35	6,000	2,310
Z	Producing	7,000.00	4,000	30	5,300	1,125

4. On the assumption that a specific order cost accounting system is in use, draft the general journal entries for the following transactions. In connection with each general journal entry indicate what sort of entries have been made in the subsidiary ledgers corresponding with the entry in the general ledger, and describe the sources of the entries in the subsidiary ledgers.

(1) Materials are purchased and placed in Stores, $3,000.00.

(2) Materials are returned from Stores to the supplier, $500.00.

(3) The payroll accrued is found to be $6,000.00, of which $5,500.00 is direct labor and $500.00 is indirect labor.

(4) Wages paid are $6,800.00.

(5) The material summary shows issued stores to be $4,500.00 on particular jobs and $300.00 for use in producing departments as indirect material.

(6) The returned material summary shows materials returned from particular jobs $200.00 and indirect material returned $40.00.

(7) The summary of spoiled work shows direct material $50.00, direct labor $40.00 and applied manufacturing expense $10.00. The estimated salvage value of the spoiled work is $15.00.

(8) Manufacturing expense applied to production $3,400.00.

(9) Work finished $10,000.00, of which $6,000.00 was placed in stock and the balance shipped directly to customers.

(10) Cost of sales from stock $3,000.00.

(11) Sales $14,000.00.

(12) Sales returns $700.00.

(13) Cost of sales returns $350.00.

5. From the following data you are to make in the form of general journal entries, record of the transactions during the year 1931 of the Quasi Manufacturing Corporation, and the adjusting and closing entries as at the end of the year. Also prepare a balance sheet as of December 31, 1931, and operating statements for the year.

TRIAL BALANCE AFTER CLOSING

December 31, 1930

Cash	$ 20,000.00	
Accounts Receivable	40,000.00	
Inventory of Finished Stock	10,000.00	
Stores	16,000.00	
Materials in Process	4,000.00	
Labor in Process	3,000.00	
Manufacturing Expense in Process	2,000.00	
Plant and Machinery	140,000.00	
Vouchers Payable		$ 20,000.00
Reserve for Depreciation		9,000.00
Accrued Payroll		2,000.00
Capital Stock		150,000.00
Surplus		54,000.00
	$235,000.00	$235,000.00

Transactions during 1931:

Purchases of materials	$ 60,000.00
Materials returned to vendors	300.00
Issues of direct materials	59,000.00
Issues of indirect materials	5,000.00
Return of direct materials from factory to Stores	100.00
Selling and general expenses vouchered	22,000.00
Manufacturing expenses vouchered	30,000.00
Payrolls accrued, direct	140,000.00
indirect	3,000.00
Payrolls vouchered	139,000.00
Sales	300,000.00
Sales returns	1,000.00
Collections on accounts receivable	295,000.00
Vouchers paid	265,000.00

Supplementary data:

Factory depreciation for the year 1931, $9,000.00.

December 31, 1931 the balances in the Standing Orders were:

Department A $13,000.00, Department B $16,000.00, Department C $18,000.00.

During the year manufacturing expense had been applied to specific orders as follows:

Department A $12,500.00, Department B $16,300.00, Department C $18,400.00.

The cost of goods finished and placed in stock was:

Materials $58,000.00, Direct Labor $130,000.00, Applied Manufacturing Expense $45,000.00.

The cost of sales was $223,000.00.

The cost of sales returned was $300.00.

XVIII

1.* The general ledger of a County Comptroller at the close of the fiscal year shows the following outstanding balances:

Debit balances:	
General Fund	$3,600,000.00
To Balance Bond Liability	4,000,000.00
Cash	950,000.00
Due from Fee Offices	250,000.00
Appropriation Expenditures	3,500,000.00
Credit balances:	
Appropriation	3,600,000.00
Bonds, Series A	500,000.00
Bonds, Series B	750,000.00
Bonds, Series C	600,000.00
Bonds, Series D	1,500,000.00
Bonds, Series E	650,000.00
Bonds and Coupons Due and Unpaid	30,000.00
Warrants Outstanding	559,000.00
Tavern License Fund	5,000.00
Laboratory Fund	6,000.00
General Tax Income	2,000,000.00
Fee Office Income	1,600,000.00
Surplus	500,000.00

Prepare journal entries closing operations for the year, and classified balance sheet as at the close of the year.

2.* On October 20, 1930, the Board of Commissioners for a certain county met for the purpose of preparing the annual budget and the appropriation bill for the year 1931, said appropriation to be based upon the estimated receipts for the year, as compiled by the comptroller. Estimated receipts and appropriations are as follows:

ESTIMATED RECEIPTS

Cash on hand	$ 800,000.00	
Net income from tax levy	4,000,000.00	
Income from fee offices	2,400,000.00	
Total Estimated Receipts		$7,200,000.00

APPROPRIATIONS

Principal of and interest on bonds	$ 800,000.00	
Salaries	3,800,000.00	
Supplies	1,300,000.00	
Jurors' fees	400,000.00	
Election purposes	300,000.00	
Old liabilities	60,000.00	
Buildings	140,000.00	
Contingent	400,000.00	
Total Appropriations		$7,200,000.00

Prepare journal entries placing appropriations on books. The estimated receipts were realized, except in the item of Fee Offices, where only $2,350,000.00 was earned. The entire appropriation was expended. Prepare journal entries, trial balance, and balance sheet, recording the results.

3.* The City of X has its records kept in three offices as follows: the general city records are kept in the office of the city clerk; the school records are kept in the office of the secretary of the board of education; the water department records are kept in the office of the secretary of the board of water commissioners. Each of these sets of records is audited by a different accountant and separate reports are made. The mayor of the city desires you to make up a consolidated statement of the city's financial condition as of December 31, 1931. Following are the balance sheets in the various reports as of that date:

General City Balance Sheet

Assets		Liabilities	
City treasurer—cash	$ 12,076.01	Accounts payable	$ 57,932.09
Delinquent taxes	7,542.90	School fund balance	1,238.92
Special assessment receivable	56,798.02	Water fund balance	5,678.02
Accounts receivable	1,017.49	Industrial school fund balance	1,826.01
Supplies	638.59	Pension fund reserve	2,299.81
Pension funds	2,299.81	Sinking fund reserve	350,194.02
Sinking fund	350,194.02	General bonds	330,000.00
Investment in water department	621,202.33	Water bonds	120,000.00
Investment in schools	700,919.63	School bonds	370,000.00
Land and buildings	1,075,032.00	Depreciation reserve	117,532.09
		Proprietary interest	1,471,019.84
	$2,827,720.80		$2,827,720.80

Water Department Balance Sheet

City treasurer—cash	$ 5,678.02	Accounts payable	$ 17,052.60
Accounts receivable	21,692.84	Depreciation reserve	181,209.60
Materials and supplies	4,562.81	City investment:	
Property and plant	850,642.03	From bonds	120,000.00
Prepaid insurance	89.02	From taxes	501,202.33
		Consumers' investment by special assessment	63,200.19
	$ 882,664.72		$ 882,664.72

School Balance Sheet

City treasurer—cash	$ 1,238.92	Accounts payable	$ 1,802.91
Tuitions due	893.49	Special fund reserve	300.00
Supplies	532.81	Depreciation reserve	51,342.08
Special fund	300.00	City investment:	
Land and buildings	751,399.40	From bonds	370,000.00
		From taxes	330,919.63
	$ 754,364.62		$ 754,364.62

In addition to the above statements you find that the secretary of the board of industrial education keeps a set of records which have not been audited but which you may consider as satisfactory for the purposes of your statement. His books show the following:

City Treasurer—Cash	$1,826.01	Accounts payable	$1,341.60
Tuitions due	76.03	City investment	560.44
	$1,902.04		$1,902.04

It will be noted in this problem that, although the records are kept separately, all cash is in the hands of the city treasurer.

4.* The following asset, liability, and surplus accounts appear on the General Ledger of the City of X for the year ending June 30, 1931. Arrange the accounts in balance sheet form so that they will properly depict the status of the city as of that date:

Cash—General	$ 24,808.65	
Cash—Bond Fund	1,009,762.92	
Cash—Special Assessment Fund	308,628.01	
Cash—Trust Fund	151.57	
Cash—Firemen's Pension Fund	527.69	
Accounts Receivable	25,037.84	
Taxes Receivable	85,542.07	
Materials and Supplies on Hand	96,054.08	
Undeposited Collections	22.08	
Accrued Water Charges	26,500.27	
Assessments Receivable	1,095,297.47	
Accounts Receivable, Capital	29.80	
Lands	1,120,472.97	
Buildings	445,243.98	
Live Stock	10,837.22	
Equipment	3,378,073.78	
Streets, Sewers, and Bridges	11,784,951.95	
Bond and Coupon Redemption Fund	15,085.75	
Firemen's Pension Fund Securities	55,700.00	
Retained Per Cent Fund	12,880.20	
Sinking Fund	465,157.80	
Notes Payable		$ 65,000.00
Sundry Claims		12.75
Unaccrued Revenues, Taxes		52,055.94
Unaccrued Revenues, Market Rents		5,645.90
General Account Surplus		135,250.40
Capital Account Surplus		10,037,978.91
Bonded Debt, General		7,001,280.00
Bonded Debt, Special Assessments		1,120,615.00
Reserve for Redemption of Bonds and Coupons		15,085.75
Special Assessment, Cost Account		1,898.27
Unclaimed Money		151.57
Firemen's Pension Fund		56,227.69
Retained Percentages		12,880.20
Reserve for Depreciation		1,456,683.72
	$19,960,766.10	$19,960,766.10

NOTE: Present balance sheets for the General Fund, the Capital Fund, and the Trust Accounts, and also a consolidated balance sheet. Include special assessment accounts and "Sinking Fund" in the Capital Fund.

5.* It is a commonly accepted theory in governmental circles that bonds should be issued for all improvements, the life of which exceeds the period of the loan. Demonstrate the truth or fallacy of this theory in the case of annually recurring improvements for a period of twenty years by presenting, for the purpose of illustration, in tabular form, a statement of taxes to be collected annually for a period of twenty years for a bond issue for each year of $100,000.00 due serially in twenty years with interest at the rate of 4½ per cent, with such comments as you may care to make.

NOTE: The latter part of this problem means that each year the city would issue $100,000.00 in 4½ per cent bonds due serially at the rate of $5,000.00 each year.

XIX

1.* A and B enter into a partnership and will share profits in the proportions indicated by their investments. A furnishes $25,000.00, and B furnishes $15,000.00, which is invested in Lands and Buildings—$10,000.00, Merchandise—$30,000.00. However, before they have actually commenced business, C, realizing that A and B have a promising venture, offers to buy a one-third interest in the business for $20,000.00. A agrees to sell provided B will consent to pay him a bonus of $4,000.00 out of his (B's) share. This B agrees to do and consents to the sale. How should the $20,000.00 be divided between A and B so that the interest of all three partners will be equal?

2.* A and B on winding up their partnership found their assets realized as follows:

Factory premises standing in their books at $10,000.00 realized $4,000.00.

Machinery standing in their books at $7,500.00 realized $2,500.00.

Merchandise standing in their books at $5,500.00 realized $4,500.00.

Accounts Receivable standing in their books at $9,500.00 realized $6,500.00.

Their unpaid liabilities were $10,500.00. A's capital stood at $15,000.00 and B's capital at $7,000.00. In respect of profits and losses they were equal partners.

Divide the proceeds of the realization between them after paying off the liabilities, and debit them as having been paid the proportion to which each was entitled, and show what amount would be payable (if any) by either partner to the other to settle the accounts.

3.* A, B, and C were partners and contributed the following capital: A $8,000.00, B $6,000.00, and C $4,000.00. Profits and losses were to be borne equally. At the end of the first year each partner had drawn $1,000.00. The assets were then disposed of for $3,000.00, the purchaser discharging all the liabilities of the firm. How should this sum of $3,000.00 be apportioned among the partners, and would any of them have to advance any further sum? If so, state which partner and how much, and make up necessary accounts to show the results.

4.* Bilsom and Marley are partners sharing profits and losses equally. The partnership is dissolved December 31, 1931, at which time Bilsom's capital investment is $10,000.00, and Marley's $2,500.00. The total liabilities of the firm are $25,000.00, which includes $5,000.00 due Bilsom on loan account and $2,500.00 due Marley on loan account. The whole assets of the firm are disposed of for $30,000.00 cash on May 1, 1932. Prepare accounts closing the partnership and show the position in which the partners stand with each other. No allowance for interest is required.

5.* A, B, and C were partners in a business on the following basis:

	Capital Contributed	Share of Profits	Salaries
A	$45,000.00	50%	$6,000.00
B	22,500.00	40%	4,000.00
C	7,500.00	10%	2,400.00

At the end of the second year's business, A died. The partners' drawing accounts before crediting their year's salaries appeared with the following debit balances: A, $2,572.00; B, $1,218.00; C, $1,710.00.

The net assets of the business after finally closing the books were found to be $74,780.00. B and C liquidate the affairs of the partnership. Three distributions of the proceeds of liquidation were made as follows: $25,000.00; $35,000.00; $11,780.00.

You are asked to prepare a tabulation showing the share of each of the distributions to each of the partners.

6.* (a) X, Y, and Z were partners having in their capital account $20,000.00, $30,000.00, and $40,000.00 respectively. X had loaned to the partnership $5,000.00. They decided to dissolve. After paying all liabilities, they had $10,000.00 cash and $70,000.00 in other assets. Show how this cash should be distributed.

(b) The balance of the assets were sold at auction for $5,000.00. How should this $5,000.00 be distributed?

(c) X has personal assets of $20,000.00 and personal liabilities outside the partnership of $40,000.00. The statutory exemption in his state is $1,500.00. What per cent of their claims will be received by the personal creditors of X?

7.* A firm of three partners divided their profits as follows: A, 11-25; B, 8-25; C, 6-25. By the partnership agreement it was provided that in the event of the death of either, the survivors should take the deceased's share in the proportion they already shared the profits. A dies. What proportion of the profits would B and C respectively take afterwards?

8.* John Jones, William Brown, and Alexander White are partners in a business, their respective interests in the profits of the business being five-tenths, four-tenths, and one-tenth. It is agreed between the partners that Mr. Jones's son is to be taken into the business January 1, 1932, on the understanding that White's interest in the business be increased to 12 per cent, which increased share is now considered to be applicable to the four previous years, while the shares of Mr. Jones and Mr. Brown are to be 40 per cent and 39 per cent respectively, while Mr. Jones's son is to be given 9 per cent interest in the profits of the business. It is further agreed that the value of the goodwill of the business, amounting to $50,000.00, is to be set up on the books. This amount is to be divided between Mr. Jones and Mr. Brown in proportion to their original interests in the profits. Mr. Jones is to transfer the sum of $6,000.00 to his son's credit, which will be in addition to the sum to be allowed him out of profits of previous years. The profits divided during the four years to December 31, 1931, were as follows:

1928	$ 41,030.00
1929	49,000.00
1930	52,000.00
1931	48,000.00

The balances at credit of the Capital accounts at December 31, 1931, were:

John Jones	$230,310.00
William Brown	185,112.00
Alexander White	21,809.00

Prepare a detailed statement showing the balances at credit of the various partners on January 1, 1932, after giving effect to the provisions of the new partnership agreement as above indicated. Ignore any question of interest.

9. A, B, C, and D were partners sharing profits in the ratio, A 40 per cent, B 30 per cent, C 20 per cent and D 10 per cent. On December 31, 1930, their accounts show balances as follows:

	Capital Cr.	Loan Cr.	Personal Dr.
A	$50,000.00	$20,000.00	$2,000.00
B	40,000.00	10,000.00	1,000.00
C	20,000.00	5,000.00	1,000.00
D	15,000.00		1,000.00

According to the books the liabilities are $50,000.00, not including the loans to partners, and the assets are $205,000.00. The business not having been profitable, the partners decide to dissolve, agreeing that interest on the loan accounts shall cease as of that date, that the assets shall be disposed of as rapidly as possible, and that, the liabilities having been paid, cash dividends shall be distributed to the partners on the last day of each month until the affairs of the firm have been completely wound up.

During January, 1931, assets having a book value of $75,000.00 were disposed of for $66,000.00, and $1,000.00 was paid for expenses incident to the liquidation. All the liabilities to outsiders were paid.

During February assets having a book value of $80,000.00 were sold for $41,000.00 and $1,000.00 paid for expenses.

In March the remaining assets were sold to a salvage company for $10,500.00, and current expenses amounting to $500.00 were paid.

Prepare a statement of the partners' capital and loan accounts, showing how they were affected by the liquidation.

February 12, 1931, C entered a petition in voluntary bankruptcy; his personal assets were $40,000.00 and his personal liabilities were $80,000.00. Estimating that the expenses of the bankruptcy will be $6,000.00, what proportion of their claims will C's creditors realize?

10. P and Q were partners. June 30, 1930, their capital accounts showed balances of $50,000.00 and $20,000.00. Partnership liabilities were $40,000.00. On this date Q was declared personally bankrupt, which under the law dissolved the partnership. Q had personal assets of $15,000.00 and personal liabilities of $25,000.00. The partnership assets were disposed of July 30 for $60,000.00.

Ignoring expenses of liquidation and of bankruptcy, (a) how will P fare in the partnership dissolution; and (b) what proportion of their claims will be realized by the creditors of Q?

11. A and B are partners with capitals respectively of $25,000.00 and $15,000.00. C buys a one-third interest in the firm for $15,000.00. A and B have been sharing profits in proportion to their capitals; in the new firm they will preserve as to each other the old capital ratio. How will they divide the $15,000.00 paid them by C? What will be the entries on the books of the firm to record the carrying out of the agreement? (Two solutions are necessary.)

12. R and S are partners with capitals of $25,000.00 and $15,000.00 respectively. Profits are shared equally. They agree with C to receive him into the firm and to give him a one-third interest if he will contribute $15,000.00 to the firm. What will be the entries on the books of the firm to record the carrying out of this contract? (Two solutions are necessary.)

XX

1.* The administrator of a will received $65,000.00 in cash to be distributed among the heirs and legatees under the terms of the will, as follows:

Sarah, a daughter of the deceased, after payment of the legacies, including a legacy of $1,000.00 to herself, was to receive one-fifth of the residue of the estate.

Jane, a daughter of the deceased, after payment of the legacies was to receive one-fifth of the residue of the estate.

Anne, a daughter of the deceased, was to receive the same as Jane.

George, a son, after payment of the legacies, including a legacy of $500.00 for himself, was to receive one-fifth of the residue of the estate.

Three children of a deceased son, Jacob, were to receive legacies of $500.00 each.

Reuben, a son, was to receive one-fifth interest in the residue of the estate, subject to the payment of the legacies as mentioned and also subject to legacies of $3,000.00 each to his wife and three children.

The administrator carried out the terms of the will.

Open the books of the administrator, showing receipt of the funds, their proper distribution, payment, and closing entries.

2.* John Smith dies on October 15, 1931, leaving a will in which he names certain legacies, which, in the aggregate, amount to $50,000.00. The executors are then instructed: (1) to use their best judgment in the disposition of such assets as may be necessary to liquidate all his liabilities; (2) to pay to his widow, Mrs. Sarah Smith, an allowance at the rate of $8,000.00 per annum from the date of his death to the date of the distribution of the residue of his estate; and (3) to distribute the residue of the estate after all claims and legacies have been met, as follows: 1/3 to his widow, and 2/3 to certain trustees named in the will.

After his death the executors drew up an inventory of the estate, which, upon being appraised, shows the following condition:

ASSETS

Real Estate	$589,000.00
Corporation Stock	320,000.00
Bonds with Premium Added	460,928.00
Bills Receivable	3,482.00
Land Contracts	37,500.00
Interest Accrued on Bonds, Bills Receivable, and Land Contracts	7,890.00
Accounts Receivable	2,000.00
Cash	29,000.00

LIABILITIES

Mortgage on Improved City Real Estate	$ 50,000.00
Bills Payable	150,000.00
Accounts Payable	1,980.00
Funeral Expenses	1,000.00
Interest Accrued on Demand Notes	1,200.00

Six months after the inventory has been filed it develops that John Smith had endorsed the note of Joseph Stevens for $15,000.00, and had discounted same with his bankers. Upon the note coming due, Joseph Stevens failed to meet same. The bank filed a claim against the estate of John Smith for the amount, which was duly paid by the executors. It is, however, believed that in the course of time this note of Joseph Stevens can be realized upon.

Exactly one year after the death of John Smith, the executors distribute the residue of the estate, and close the books. The following transactions, in addition to those enumerated or suggested above, have taken place during the year.

75 Bonds Par $1,000.00 and inventoried at 110 were sold at 108¾.

300 Shares Par $100.00 and inventoried at 85 were sold at 90.

400 Shares Par $100.00 and inventoried at 90 were sold at an increase of 10 per cent of their inventory valuation.

The Real Estate which was encumbered by a mortgage of $50,000.00 was sold by consent of the Probate Court and of the widow for a sum of $35,000.00 in excess of the mortgage, the purchaser assuming the mortgage. This real estate had been included in the inventory at $85,000.00.

The profits arise from the following sources:

Dividends	$15,000.00
Interest on Bonds	18,500.00
Interest on Bills Receivable and Land Contracts	2,400.00
Net Rentals after Paying Taxes, etc.	9,000.00

The charges consist of the following items:

Office Expense	$ 5,000.00
Interest on Mortgage and Bills Payable	4,750.00
Premium on Bonds Written Off	2,000.00
Executors' Fees Allowed by Court	15,000.00

The accrued interest on bonds, bills receivable, and land contracts at the close of the executors' term of office is found to amount to $6,100.00.

Set up journal and cash book entries and ledger account, and prepare suitable summarized statement of executors' transactions for presentation to the beneficiaries.

NOTE: Use only one cash account.

3.* The duly appraised inventory of the estate of John Smith, who died August 31, 1928, was filed by the executor on October 1, 1928. The items were as follows:

Property

Real Estate and Buildings	$150,000.00
Corporation Stocks	11,900.00
Corporation Bonds	25,000.00
Rents Due from the Tenants for August	1,500.00
Cash on Deposit in Checking Account	3,000.00
Accrued Interest on Corporation Bonds	500.00
Rents Due from Tenants for September	2,000.00
Notes Receivable	16,000.00
(a) one-year note dated June 1, 1928, interest at 6% payable quarterly, $5,000.	
(b) one six months' note dated July 15, 1928, interest at 6% payable at maturity, $3,000.	
(c) one three months' note dated August 1, 1928, with interest at 6%, $8,000.	
Homestead	10,000.00
Personal Property (jewelry, automobile, etc.)	3,500.00
Total	$223,400.00

Debts

Real Estate and note secured by mortgage on buildings, given July 1, 1927. Interest at 6% is payable semi-annually	$ 25,000.00
Unpaid Funeral Expenses	750.00
Sundry Personal Debts	1,200.00
Total	$ 26,950.00

The executor engages you to determine the net income of the estate from the following transactions which appear properly recorded upon the ledger:

(1) 50 shares of stock par $100 inventoried at 105, were sold at 110.

(2) 50 shares of stock par $100 inventoried at 50, were sold at 50.

(3) 50 shares of stock of no par value inventoried at 83 sold at 93.

(4) Net rent collected from tenants, including those stated in the inventory, and after paying taxes, $13,500.

(5) Interest received from bonds while owned, $750.

(6) Bonds were all disposed of for $27,500 which included accrued interest of $350 in addition to the interest mentioned in (5).

(7) Real estate inventoried at $30,000 was sold for $33,000, and on January 1, 1929, the note secured by the mortgage on real estate was duly paid with interest to date.

(8) The funeral expenses and the sundry personal debts of Smith were paid.

(9) The executor was paid a salary of $3,600 during the period, and office expenses amounted to $5,000.

(10) Dividends were received from stocks while owned, amounting to $350.

(11) Taxes, repairs, and general expenses of the homestead were paid in cash $3,000.

(12) Taxes on unimproved real estate amounted to $125.

(13) The principal and interest of all the notes receivable were paid when due.

4.* The estate of John Robertson, deceased, consisted of the following assets, which were appraised as required by the Probate Court:

	Appraised Value	Disposition under the Will
Flat Building	$17,000.00	To his daughter Mary.
6% Mortgage-interest payable June 1 and Dec. 1	35,000.00	To the widow for life, and then to his two sons, John and James, equally.
Vacant Real Estate		
Lot 1	10,000.00	Cash to John, James, and Mary, $5,000.00 each, and the balance of the estate to the widow.
Lot 2	8,000.00	
Home	9,000.00	
Household effects	1,500.00	
Cash	2,500.00	

At the time of death (June 24, 1930) the accrued interest amounted to $140.00.

Debts amounting to $400.00, funeral expenses of $450.00, and the legal and probate expenses amounting to $900.00, were paid in cash. In September, 1930, Lot 1 was sold for $12,000.00, and by the consent of all parties John took Lot 2 in discharge of the bequest to him and paid the estate $3,500.00 in cash.

The widow died on May 15, 1931, at which date the accrued interest amounted to $962.50. The widow left her entire estate to Mary.

The interest on the mortgage was promptly collected on December 1, 1930, and June 1, 1931.

Prepare the statements necessary for presentation to the court in closing the estate as at July 15, 1931.

5.* John Doe died on March 1, 1930, leaving a will which made the following provisions:

(1) William Doe, his brother, was made executor.

(2) A legacy of $10,000 and his personal jewelry to go to his son, George.

(3) A legacy of $5,000 and his electric automobile to go to his daughter, Kate.

(4) That his widow, Mary M. Doe, should receive a legacy of $5,000 and a sum additional thereto sufficient to pay all household expenses due and accrued at the time of his death.

(5) That his widow, Mary M., shall be paid an allowance of $7,200 per annum, and to have full possession and use of the homestead property, from the date of his death to the final distribution of the estate. The annual allowance herein provided to be paid in quarterly installments, the first payment to be made three months from the date of his death.

(6) That the executor should use his best judgment in the disposition of such assets as might be necessary to liquidate the liabilities of the estate, to make immediate payment of the initial legacies to his widow, son, and daughter, and to make the quarterly payments to his widow as provided in paragraph 5.

(7) That the executor shall have authority to sell property of the estate and to take in payment therefor either cash or securities, but that the executor is not of authority to invest the proceeds of property sales.

(8) That during the term of executorship, the executor shall receive $4,800 per year in payment for all service (in lieu of all fees and commissions), but such salary not to include necessary expenses of the executor.

(9) That the final distribution of the estate should be made as soon as possible and should be as follows:

- ½ to the widow, Mary M.
- ¼ to the son, George.
- ¼ to the daughter, Kate.

On March 15, 1930, William Doe filed evidence of executorship. On

April 1, 1930, the executor filed with the court the following inventory of the estate of John Doe.

Inventory April 1, 1930
Filed by William Doe, Executor

PROPERTY	Appraised Value
Homestead Grounds and Buildings	$ 40,000.00
Renting Real Estate	100,000.00
Unimproved Real Estate	80,000.00
Rents Due for March	500.00
Cash Received for February Rent	500.00
Stock of the C. O. D. Ry. Co.	10,000.00
Certificates of Deposit dated December 31, 1929, at 4% interest paid quarterly	6,000.00
Cash in Bank, Checking Account	2,000.00
Personal Jewelry	300.00
Electric Automobile	1,000.00
Note Receivable, dated December 1, 1929, for one year, interest rate 6%, payable semiannually	4,000.00
4% Bonds of the Chicago Street Ry. Co. par value $1,000, interest payable January and July	30,000.00
Note Receivable, drawer Wm. Doe, due July 1, 1930, without interest	1,000.00
Total	$275,300.00

DEBTS	
Mortgage held by Trust Co. on Renting Real Estate, due September 1, 1930, interest rate 6% payable annually	$ 20,000.00
Note held by Commercial Bank, dated February 1, 1930, for four months at 6%	1,000.00
Accrued Household Expenses for February	150.00
Accrued Household Expenses for March	150.00
Unpaid Funeral Expenses	700.00
Sundry Personal debts of John Doe	500.00
Total	$ 22,500.00

During the period of executorship, in addition to the specific transactions required by the provisions of the will and the ordinary transactions which do not require special mention, the following transactions took place:

(1) The revenue-producing real estate was sold on September 1, 1930, for the sum of $110,000 cash. The purchaser assumed all unpaid taxes. The monthly rents ($500 per month) had been collected to the time of sale.

(2) Notes Receivable were collected when due.

(3) The Chicago Street Ry. Co. bonds were sold on May 1, 1930, for 102 and accrued interest.

(4) The expenses of the executor amounting to $850 were paid on March 31, 1931.

(5) The salary of the executor was paid on March 31, 1931.

(6) The executor paid repair and upkeep expenses on revenue-producing property amounting to $900.

(7) The executor paid taxes on unimproved real estate for the calendar year 1930 amounting to $3,600. (Do not capitalize in your solution.)

(8) The executor paid taxes on the homestead property for the calendar year of 1930 amounting to $1,800.

(9) A dividend of 5 per cent was received on the stock of the C. O. D. Ry. Co. for the year 1930.

(10) Certificates of deposit were not converted into cash and were on hand March 31, 1931.

On March 15, 1931, the executor, having paid all of the old liabilities of the estate, filed a report setting forth the transactions of the executor and setting forth a plan of final distribution of the estate in accordance with the terms of the will. The plan of distribution was approved by all legatees and the court, and on March 31, 1931, the current liabilities were liquidated, the division of the estate was accomplished, and the executor discharged.

The following information is to be submitted by you either in the form of separate schedules or in one large schedule arranged in columnar form:

(a) Assets and liabilities of the estate of John Doe at the time of his decease.

(b) Cash receipts and disbursements from the decease of John Doe to the close of the executorship, excluding final division of the estate.

(c) Assets sold or disposed of by the executor, excluding final distribution of the estate.

(d) Liabilities liquidated by the executor.

(e) Expenses of the estate from the decease of John Doe to the close of the executorship.

(f) Revenues of the estate from the decease of John Doe to the close of the executorship.

(g) Legacies to the widow, Mary M., excluding final distribution of the estate.

(h) Legacies to the son, George, excluding final distribution of the estate.

(i) Legacies to the daughter, Kate, excluding final distribution of the estate.

(j) Residual assets owned by the estate and distributed to legatees on March 31, 1931.

(k) Use your total figures and submit proof of the accuracy of your solution.

It should be noted that division of the residual assets according to the terms of the will is not called for; it is not necessary to divide the expense of the executorship between principal and income.

XXI

1.* Prepare from the following figures, as if for a meeting of creditors, a Statement of Affairs of Brown and Company and a Deficiency Account.

Cash at Bank, $500.00; Cash in Hand, $50.00; present value of lease, $5,000.00, upon which a loan of $2,500.00 has been obtained; debtors good, $10,000.00; ditto doubtful, $1,500.00, which it is expected will produce $750.00; ditto bad, $2,500.00; creditors unsecured on open accounts, $40,000.00; creditors on bills payable, $10,000.00; stock-in-trade, cost $20,000.00, estimated to realize $12,000.00; plant and machinery, cost $12,500.00, estimated to produce $6,000.00; liability on an advance of $4,000.00, against security valued at $1,750.00; liabilities on accommodation bills of exchange, $15,000.00, of which it is expected $7,500.00 will rank for dividend; liabilities on bills discounted $20,000.00, of which it is expected $3,500.00 will rank for dividend; creditors for rent and wages, $250.00.

2.* On June 30, 1931, the following Balance sheet of a small merchant is furnished by him:

Cash at Banker's, $575. Cash in office, $225. Accounts receivable, $3,785. Merchandise $1,000. Store fixtures, $415. Accounts payable, $3,500. Bills payable, $2,000. Balance (capital), $500.

Upon inquiry it is disclosed that the following items have been omitted from the Balance Sheet, and have not been entered on the books, viz.:

(a) $1,000 borrowed at 6 per cent June 30, 1929, upon which nothing has been paid in respect of either principal or interest.

(b) $50 due for rent of store.

The cash is found to include sundry petty expense items amounting to $35, and an I. O. U. of a former employee for $50, which is worthless.

$1,500 of the accounts receivable are known to be bad; $1,500 are good, and the balance is estimated to produce $500. The merchandise can be sold to realize $750. The fixtures will realize $150. The merchant has no personal assets.

Prepare a Statement of Affairs and a Deficiency Account.

3.* The Randolph and Madison Novelty Company manufactured the "Shriek" automobile horn and as a side line also manufactured the "Handy" trouble lamp. It was a very profitable business until a new horn was put on the market which was received with such favor by the public that it was no longer possible to sell the "Shriek." The company was very soon in difficulties, and a receiver was applied for on October 31, 1931, at which time the books showed as follows:

Land and Building at Cost	$ 35,000.00	
Machinery and Equipment at Depreciated Value	25,000.00	
Inventory of Raw Material and Supplies	30,000.00	
Inventory of Finished Stock	60,000.00	
Accounts and Notes Receivable—Good	$ 15,000.00	
—Doubtful	15,000.00	
—Bad	7,000.00	
Deferred Charges—Advertising Campaign	30,000.00	
Unexpired Insurance	350.00	
Bank Loans		$ 30,000.00
Other Notes Payable		40,000.00
Mortgage Loan on Real Estate, 6%		20,000.00
Accounts Payable—secured		10,000.00
Accounts Payable—unsecured		50,000.00
Accrued Payroll		1,700.00
Accrued Interest on Mortgage Loan		1,800.00
Accrued Interest on Bank Loans Payable		350.00
Surplus		13,500.00
Capital Stock		50,000.00
	$217,350.00	$217,350.00

The land and building have appreciated and now have a market value of $40,000.00, but the Machinery and Equipment would have very little value to any other concern, and it is estimated that it cannot be sold for more than scrap value of $5,000.00. The inventory of Raw Material and Supplies has increased because of a rise in the market, and it is expected to bring $35,000.00; but the Finished Stock can be sold only at bargain prices and will probably bring not more than $10,000.00. It is estimated that $2,500.00 will be realized on the doubtful accounts and nothing on the accounts classified as bad. If canceled at the short rate, the insurance policies will bring $300.00.

An offer has been received to purchase the exclusive rights to the trade name "Handy" trouble lamp for a consideration of $3,000.00.

The Bank Loan is secured by the deposit of warehouse receipts covering all of the Raw Material and Supplies, and the secured Accounts Payable creditors have received assignments of Accounts Receivable of an equal face value and will be fully satisfied from the collections thereon.

Prepare a Statement of Affairs and a Deficiency Account for submission to the creditors and stockholders.

4.* A receiver who has been appointed for the retail business of A. Adams retains you to ascertain the approximate percentage which unsecured creditors will receive on their claims. From the following data you are asked to answer your client's question and also to prepare the proper statement and the proper accompanying account as preliminary thereto:

ASSETS

Cash on Hand		$ 500
Cash on Deposit		2,000
Accounts Receivable	$ 28,500	
Reserve for Bad Debts	2,500	
		26,000
Notes Receivable Trade		15,000
Notes Receivable, Gem Co.		60,000
Bank Stock—200 shares at 131⅛		26,225
Stock—Gem Co. 90% interest		45,000

Merchandise Inventory		$ 20,000
Land		25,000
Buildings	$175,000	
Less Reserve for Depreciation	35,000	
		140,000
Machinery and Tools	$187,500	
Less Reserve for Depreciation	44,500	
		143,000
Automobile Truck	$ 15,000	
Less Reserve for Depreciation	12,500	
		2,500
Office Furniture and Furnishing	$ 4,000	
Less Reserve for Depreciation	2,000	
		2,000
Unexpired Insurance		375
Accrued Interest on Trade Notes, Rec.		225
Total Assets		$507,825

LIABILITIES

Notes Payable	$200,000
Accounts Payable	175,725
Taxes Accrued	1,500
Wages Accrued	275
Accrued Interest on Notes Payable	12,000
Mortgage on Land and Buildings	125,000
Accrued Interest on Mortgage loan	6,250
Total Liabilities	$520,750
A. Adams, Investment	$50,000
A. Adams, Drawing, Dr.	62,925
	$12,925

The following appraisals and estimates of values have been made:

Land	$ 30,000
Buildings	135,000
Machinery and tools	85,000
Auto trucks	2,000
Furniture and furnishings	1,200
Merchandise inventory	12,000
Accounts Receivable—Good	20,000
Accounts Receivable—Bad	2,000
Accounts Receivable—Doubtful	6,500
but estimated to realize	3,000

The following additional facts should be taken into consideration:

Trade Notes Receivable and Accrued Interest are secured by 150 shares of an industrial stock quoted at 156.

Cash on Hand includes an I. O. U. of the proprietor for $75 and a salary advance ticket to the cashier of $10.

The Bank Stock is quoted at 150; 175 shares of this stock are pledged to secure Notes Payable of $20,000 with accrued interest of $1,000.

Accounts Payable to the extent of $5,725 are secured by a chattel mortgage on merchandise of $3,000.

The financial statement of the Gem Co. shows:

Assets	$150,000
Liabilities	85,000
Capital Stock outstanding	50,000
Surplus	15,000
The assets have been appraised at	135,000

Trade notes receivable not yet due have been discounted at the bank to the amount of $5,000, and an examination of these discounted notes shows that one of $1,000 will be dishonored.

5. In making the Statement of Affairs of an insolvent company, you find that the raw materials are included in the inventory at $45,000.00, but that they will bring only $20,000.00 at current prices. You are confident, however, that by spending $25,000.00 on these materials you can manufacture a product which will sell for $60,000.00.

Goods in Process stand on the books at $15,000.00. In their present state they are of practically no value. By spending $10,000.00 on these goods in process you think you can count on realizing $20,000.00 from their sale as completed articles.

How will you present this situation in the Statement of Affairs?

XXII

1.* A malting company was placed in the hands of a Receiver in Bankruptcy. The assets inventoried by the Receiver were:

Accounts Receivable	$218,477.15
Grain and Products in Malt House	29,359.74

An order of the court was entered instructing the Receiver to continue the operation of the business. After the Receiver had operated the business two months, a settlement was effected, and the Receiver discharged by the Court, the bankrupt company resuming business. The Receiver's books of the bankrupt company's accounts showed at the date of his discharge:

Collections on account of the Accounts Receivable inventoried above $10,097.60; they showed that in trade the Receiver had made gross sales to the amount of $114,806.62; his grain purchases were $110,786.61; manufacturing expenses $7,279.07; selling expenses $7,956.97; Receiver's charges $1,000.00; discounts, shortages, and merchandise returned $1,370.85; on hand in grain and products $51,005.62; he has collected in cash on Receiver's sales $65,448.83; he owes on open account $5,237.52; he borrowed from banks $46,251.10.

Give the summary journal entries for the transactions of the Receiver as they would appear on his books.

Prepare the statements which the Receiver should include in his report to the Court.

2.* On January 1, 1930, the Balance Sheet of the Peerless Company was as follows:

Cash	$ 8,445.51	
Accounts Receivable	283,471.62	
Raw Material	93,478.91	
Finished Goods	48,167.66	
Factory Supplies	5,398.42	
Plant Real Estate	100,000.00	
Plant Buildings	470,000.00	
Machinery and Equipment	367,444.32	
Office Equipment	7,864.32	
Unexpired Insurance	2,736.52	
Bonds dated and issued January 1, 1929 (20 years @ 6% sold for $210,000.00)		$ 200,000.00
Accrued Interest on Bonds		6,000.00
Premium on Bonds		9,500.00
Accounts Payable		118,392.00
Accrued Taxes		1,837.13
Reserve for Bad Debts		28,943.71
Reserve for Depreciation, Buildings		49,500.00
Reserve for Depreciation, Machinery		85,873.41
Reserve for Depreciation, Office Equipment		927.23
Capital Stock		800,000.00
Surplus		86,033.80
Totals	$1,387,007.28	$1,387,007.28

The company had been losing money for several years, and was unable to meet both the interest on bonds and the accounts due. A bondholder, who was also a stockholder and therefore friendly to the company, applied for the appointment of a receiver in equity. The Court appointed William Brown as receiver, directing him to take over all the assets of the business, and to operate it in the attempt to rehabilitate it.

January 2, 1930, the receiver assumed his duties. His transactions during 1930 were as follows:

Sales to Customers on Account	$1,559,528.13
Raw Materials Purchased on Account	639,018.87
Labor Paid	468,923.18
Salaries Paid	74,360.00
Superintendence Paid	15,000.00
Factory Supplies Paid For	37,637.94
Sales Discounts	18,395.43
Purchase Discounts	8,473.45
Shop Expenses Paid	9,461.89
Selling Expenses Paid	86,175.41
Repairs on Building and Machinery Paid	30,955.67
Office Expenses Paid	3,478.62
Taxes Paid Including Taxes Accrued January 1	3,980.65
Insurance Paid	6,173.22
Accounts Receivable charged off (old)	2,401.12
Interest on Bonds paid including accrual January 1	12,000.00
Cash Collections from Customers	
Old	242,000.00
New, Net Cash Collected	1,329,000.00

Accounts Payable Paid by Cash	
Old	$118,392.00
New, Net Cash Paid	522,000.00
Receiver's Commissions Paid	20,000.00

December 31, 1930, the inventories were as follows:

Raw Materials	$51,921.12
Finished Goods	25,945.35
Factory Supplies	6,128.41
Prepaid Insurance	2,143.00

December 31, 1930, the accrued taxes were $2,146.00.

Depreciation for the year should be charged as follows:

Buildings	$ 9,500.00
Machinery and Equipment	24,983.00
Office Equipment	625.00

An allowance of $8,000.00 should be made for bad debts on the new accounts.

In journal form prepare the entries on the receiver's books.

In journal form prepare the entries on the books of the Peerless Company.

Prepare the statements which should be included in the receiver's report to the Court as of December 31, 1930.

3. Refer to XXII, 2. On January 1, 1931, in accordance with the order of the Court, William Brown turned back to the Peerless Company its assets.

In journal form prepare the entries for the books of the receiver.

In journal form prepare the entries for the books of the Peerless Company.

Prepare a Balance Sheet of the Peerless Company after the return of its assets.

4.* The firm of Brown and Coleman became financially embarrassed, and a trustee was appointed January 1, 1931, to take charge of the affairs for the creditors.

On this date, January 1, 1931, the financial condition, as shown by their balance sheet, was as follows:

ASSETS

Cash on hand and in bank	$ 1,509.75
Notes receivable	27,000.00
Accounts receivable	7,500.00
Merchandise	6,330.27
Plant	24,000.00
Real estate	15,000.00
Total assets	$81,340.02

LIABILITIES

Accounts payable	$15,000.00
Notes payable	9,000.00
Notes receivable (discounted)	15,000.00
Mortgage on real estate	12,000.00
Mortgage on plant	19,500.00
Taxes	472.50
Brown's capital	5,183.76
Coleman's capital	5,183.76
Total liabilities	$81,340.02

To realize advantageously on all assets, the trustee bought merchandise to the amount of $15,000.00, and collected during the year $32,025.00, cash, on sales.

Accounts receivable realized $5,925.00. Of notes receivable, appearing on balance sheet as $27,000.00, there was on hand but $12,000.00, the balance of $15,000.00 having been discounted with the bank and represented on the liability side of the balance sheet as "Notes receivable, discounted."

The $12,000.00 notes on hand was realized in full. Of the $15,000.00 discounted at bank, only 70 per cent was realized; the balance was lost.

Notes payable, interest on mortgage (5½%) and the taxes were paid in course of settlement, also one-half of accounts payable were discharged.

Expenses incident to the trusteeship were as follows: Salaries, $1,500.00; office expenses, $1,200.00; attorney's fees, $1,800.00; and trustee's commission, $3,000.00.

During the year the owners' withdrawals for private use were $1,500.00 each. There remains on hand January 1, 1932, merchandise to the value of $8,400.00.

Prepare the entries in summary form as they would appear on the books of the trustee.

Prepare the entries in summary form as they would appear on the books of Brown and Coleman.

Prepare the trustee's charge and discharge statement.

Prepare the trustee's cash account.

5.* The Balance Sheet of the State Serum Company, as of December 31, 1930, appears as follows:

ASSETS

Cash on hand and in bank		$ 2,324.75	
Lands and buildings		25,000.00	
Machinery and equipment		10,000.00	
Accounts receivable		763.50	
Inventory		8,735.35	
Serum and virus hogs	$ 2,835.35		
Serum on hand	5,600.00		
Grease on hand	300.00		
Total assets			$46,823.60

LIABILITIES AND NET WORTH

Accounts payable		$ 4,428.40	
Accrued wages due		461.45	
Capital stock less deficit		41,933.75	
Capital stock	$50,000.00		
Deficit	8,066.25		
Total liabilities and net worth			$46,823.60

The minority stockholders, believing that the management has been wasteful, secure the appointment of a receiver in equity who manages the business from January 1, 1931.

The receiver issued $15,000.00 in certificates authorized by the court. These certificates were to run three years and to draw interest at 6 per cent per annum. The proceeds were used for additions to buildings, $9,154.06; for purchase of additional equipment $3,197.94; and to increase the working capital. The certificates were all purchased by John Haines, one of the minority stockholders.

During the year purchases were made as follows: Serum and virus hogs, $45,246.57; feed for hogs, $4,515.23 (all consumed during the year); miscellaneous manufacturing supplies $3,706.40 (all used during period); in freight, $1,164.52.

Expenses were incurred during the year as follows: Productive labor, $8,204.74; light, power, and heat, $1,024.78; factory repairs, $385.47; rent of lands, $264.16; office supplies and expense, $87.49; salaries of officers and clerical force, $3,908.33; salary of salesman, $2,000.00; salesman's traveling expenses, $733.38; interest on receiver's certificates, $900.00.

Sales for the year were $105,073.46; return sales and allowances $187.27.

Inventory at close of the year was as follows: Serum and virus hogs, at cost, $2,759.04; manufactured serum on hand, valued at cost, $2,869.92; grease, at cost, $127.50.

Allow for depreciation as follows: On buildings $400.00; on equipment $600.00.

The receiver collected the accounts receivable as of January 1, 1931, except $250.00 which were charged off as uncollectible. Of the 1931 sales, all but $6,200.00 had been collected by December 31, 1931. These outstanding accounts were considered 100-per-cent collectible.

The receiver paid during the year all the liabilities as of January 1, 1931, and all the liabilities incurred by him, except $4,500.00 for purchase of hogs on open account and the receiver's certificates.

December 31, 1931, John Haines and his associates of the minority acquired the stock formerly held by the majority stockholders, and the court ordered the dissolution of the receivership.

January 3, at the annual meeting of the stockholders, a new board of directors was elected, and an issue of $15,000.00 6-per-cent bonds dated January 1, 1932, and secured by a mortgage on the real estate was authorized. These bonds were to be issued in return for the receiver's certificates which were to be canceled. As these certificates were all held by John Haines, the new president of the company, the exchange was effected immediately.

January 4, 1932, the receiver returned the properties taken over to the directors of the State Serum Company, retaining $6,000.00 which had been agreed upon as the proper compensation for his services. Since the new bonds were dated January 1, 1932, they were considered as taking the place of the receiver's certificates from that day; that is, no interest adjustment was necessary for the three days' interest on the certificates in 1932.

Draft the entries on the books of the receiver.

Draft the entries on the books of the corporation for all these transactions.

Prepare the receiver's report to the court as of December 31, 1931, and his supplementary report as of January 4.

XXIII

1. Refer to XXII, 4. Prepare realization and liquidation statement in old style; and trustee's cash account.

2. Refer to XXII, 4. Prepare realization and liquidation statement in the new style, and supplementary realization profit and loss account.

3. Refer to XXI, 3. Using the data there furnished and the following, prepare a realization and liquidation statement old style and a liquidation profit and loss account. Also prepare a receiver's cash account. Assume that the receivership lasted 14 months.

The land and buildings were sold for $41,000.00, but the agent had to be paid a commission of $2,000.00. The proceeds of the sale were used to pay the mortgage and accrued interest to December 15, the balance being turned into the general funds.

The prepaid insurance yielded $300.00 as expected.

The trade name "Handy" was sold for $3,000.00.

The machinery and equipment was sold for $4,500.00.

Raw materials and supplies brought $33,000.00 and finished stock $9,000.00

The accounts receivable as shown by the books yielded only $18,000.00. It was discovered, however, that accounts amounting to $2,000.00 previously charged off as bad, were collectible, and collection was accomplished.

It was found that the stockholders had paid only $45,000.00 for the stock, the discount having been charged to an expense account. $4,000.00 of these discounts were recovered, less court and legal costs $750.00.

The bank loans were paid December 30, an additional $150.00 in interest having accrued on them.

Secured accounts payable were paid out of the collections of the hypothecated accounts receivable.

The Accrued Payroll was paid in full as a preferred liability.

The expenses of the receivership were $6,000.00. The remaining cash was distributed among the general creditors pro rata.

4. Refer to Figure 102 in Chapter XXI. Prepare as of February 28, 1931, a realization and liquidation statement old style; also a receiver's cash account, and a receiver's profit and loss account. The transactions of the receiver during January and February were as follows:

Accounts receivable which had been charged off as bad debts are found to be collectible in amount of $500.00. The cash is collected.

It was discovered that an automobile bought for use of the city salesmen and marked off when stolen in October, 1930, had been recovered by the police. After paying the police storage charges of $32.00, the car was sold for $540.00.

The balance sheet as drawn up December 31 failed to include taxes due, but payable March 1, 1931, $1,250.00.

In addition to the above, cash was realized by the receiver as follows:

Materials and Supplies sold, only that pledged being disposed of	$10,000.00
Finished and Partly Finished Stock inventoried at $18,000.00 in the balance sheet, having been conditioned by the expenditure of $4,000.00 sold for	15,000.00
All the Notes Receivable collected	10,000.00
Land, Building, and Plant were sold for	42,000.00
Accounts Receivable collected	
Good	55,000.00
of which $50,000.00 was on accounts pledged to secure the notes payable	
Doubtful	6,000.00

Cash outlays by the receiver were as follows:

Payment to police of storage charges on car	$ 32.00
Payment of Mortgage	32,500.00
Payment of interest accrued on Mortgage	525.00
Payment on the Accounts secured by warehouse receipts from proceeds of sale of pledged materials and supplies	10,000.00
Payment of the secured Notes Payable	50,000.00
Payment of labor in conditioning inventory	4,000.00
Payment of Rentals Due	5,000.00
Payment of Pay Rolls Accrued	10,000.00
Payment of Sundry Expenses of Receivership	4,000.00
Payment of 25% dividend to unsecured, non-preferred creditors	25,250.00
Payment of Taxes Accrued	1,250.00

5. Refer to XXIII, 3. Prepare realization and liquidation statement new style.

XXIV

1. Prepare consolidated balance sheets of the corporations R, S, and T, at the date of the acquisition of stock in S and T by R. Assume:

(a) R has acquired the entire capital stock of S and of T.

(b) R has acquired 90 per cent of the stock of S and 80 per cent of the stock of T.

(c) R has acquired 80 per cent of the stock of S and 90 per cent of the stock of T.

Balance Sheets

January 1, 1931

Assets	R	S	T
Investment in Stock of S	$ 180,000.00	$	$
Investment in Stock of T	250,000.00		
Sundry Assets	570,000.00	300,000.00	450,000.00
Goodwill			50,000.00
	$1,000,000.00	$300,000.00	$500,000.00
Equities			
Sundry Liabilities	$ 350,000.00	$120,000.00	$260,000.00
Capital Stock	500,000.00	100,000.00	200,000.00
Surplus	150,000.00	80,000.00	40,000.00
	$1,000,000.00	$300,000.00	$500,000.00

2. Prepare consolidated balance sheet of companies A, B, and C at date of acquisition of B and C by A, January 1, 1931. Assume:

(a) A owns 100-per-cent interest in each subsidiary.
(b) A owns 80 per cent of B and 75 per cent of C.
(c) A owns 90 per cent of B and 80 per cent of C.

Balance Sheets

January 1, 1931

Assets	A	B	C
Investment in Stock of B	$ 60,000.00	$	$
Investment in Stock of C	160,000.00		
Sundry Assets	200,000.00	150,000.00	300,000.00
Deficit		50,000.00	
	$420,000.00	$200,000.00	$300,000.00
Equities			
Sundry Liabilities	$100,000.00	$100,000.00	$100,000.00
Capital Stock	300,000.00	100,000.00	100,000.00
Surplus	20,000.00		100,000.00
	$420,000.00	$200,000.00	$300,000.00

3.* The following companies (two corporations and one partnership) being engaged in the same line of business, decide to consolidate by the formation of a fourth company which will acquire their Assets, Liabilities, and business. The financial position of the respective companies at December 31, 1931, is as follows:

	A Co. (Corporation)	B Co. (Partnership)	C Co. (Corporation)
Real Estate, Buildings, and Machinery	$1,300,000.00	$1,020,000.00	$1,140,000.00
Goodwill			500,000.00
Inventories	750,000.00	680,000.00	400,000.00
Accounts and Bills Receivable	400,000.00	310,000.00	210,000.00
Cash	45,000.00	68,000.00	39,000.00
Partners' Drawing Accounts		20,000.00	
	$2,495,000.00	$2,098,000.00	$2,289,000.00
Capital Stock	$1,000,000.00		$1,400,000.00
Partners' Capital		$1,389,000.00	
Bonds Outstanding	500,000.00		
Bills Payable	120,000.00	175,000.00	80,000.00
Accounts Payable	340,000.00	270,000.00	420,000.00
Bond Sinking Fund	45,000.00		
Reserve for Bad Debts	20,000.00	24,000.00	11,000.00
Reserve for Depreciation	195,000.00	240,000.00	172,000.00
Surplus	275,000.00		206,000.00
	$2,495,000.00	$2,098,000.00	$2,289,000.00

The results from operations for the year 1931 were as follows:

Profit and Loss Account—Year 1931

Sales (Net)	$1,500,000.00	$1,200,000.00	$ 900,000.00
Cost of Sales	750,000.00	480,000.00	520,000.00
	$ 750,000.00	$ 720,000.00	$ 380,000.00
Miscellaneous Income			
Bank Interest	1,000.00	1,200.00	600.00
Profit on Insurance Recovery (account plant unit destroyed by fire)		6,000.00	
Profit on sale of real estate	10,000.00		
	$ 761,000.00	$ 727,200.00	$ 380,600.00
Deduct:			
Management Salaries	$ 50,000.00	$ 6,000.00	$ 24,000.00
Selling and General Expenses	360,000.00	390,000.00	180,000.00
Interest on Bonds	25,000.00		
Interest on Bills Payable	7,000.00	14,000.00	6,000.00
Bond Sinking Fund	15,000.00		
Federal Taxes	51,000.00	48,500.00	8,300.00
	$ 508,000.00	$ 458,500.00	$ 218,300.00
Balance carried to Surplus	$ 253,000.00	$ 268,700.00	$ 162,300.00

The agreements for the transfer contain the following provisions:

(a) That the Net Tangible Assets shall be paid for on the basis of 25 per cent in cash and 75 per cent in Preferred Stock of the new Company.

(b) For the purpose of the consolidation, the Real Estate, Buildings, and Machinery were appraised, the sound values at December 31, 1931, being found to be as follows:

A Company	$1,400,000.00
B Company	1,150,000.00
C Company	1,020,000.00

(c) That allowance be made to the vendors for Goodwill, payable in Common Stock, the amount to be determined thus: two times the Net Earnings from operations for the year 1931 exclusive of any interest charges (either debit or credit) and before providing for federal taxes and after fixing management salaries at 4 per cent of the net sales for the year 1931, also after deducting 7 per cent interest on the Net Tangible Assets at December 31, 1931.

(d) For the purpose of realizing cash to pay off the vendors, additional Preferred Stock is to be disposed of at 90 to produce the amount of cash required for payment to the vendors.

Assuming that the above transactions are properly carried out, prepare a Balance Sheet showing the position of the New Company as of January 1, 1932; also prepare statements showing the amount of Cash, Preferred Stock, and Common Stock received by each of the vendor Companies.

4.*

Balance Sheet of Company "A"

	Dr.	Cr.
Land, Buildings, and Machinery	$200,000.00	
Goodwill	50,000.00	
Investments in outside securities (fair value)	10,000.00	
Merchandise	160,000.00	
Accounts and Bills Receivable, less Reserves	80,000.00	
Cash	15,000.00	
Insurance Unexpired	2,000.00	
Capital Stock		$250,000.00
Mortgage on Property (Balance unpaid)		80,000.00
Accounts Payable and Accrued		40,000.00
Fire Insurance Reserve		12,000.00
Sinking Fund for Retirement of Mortgage		10,000.00
Surplus		125,000.00
	$517,000.00	$517,000.00

Balance Sheet of Company "B"

	Dr.	Cr.
Land, Buildings, and Machinery	$110,000.00	
Merchandise	90,000.00	
Accounts and Bills Receivable, less Reserves	95,000.00	
Cash	46,000.00	
Insurance Unexpired	1,500.00	
Patents	100,000.00	
Capital Stock		$100,000.00
Bills Payable		60,000.00
Accounts Payable and Accrued		75,000.00
Reserve for Plant Extensions		18,000.00
Surplus		189,500.00
	$442,500.00	$442,500.00

Balance Sheet of Company "C"

	Dr.	Cr.
Land, Buildings, and Machinery	$130,000.00	
Treasury Stock (Par)	20,000.00	
Merchandise	140,000.00	
Accounts and Bills Receivable, less Reserves	120,000.00	
Cash	38,000.00	
Insurance Unexpired	1,200.00	
Capital Stock		$200,000.00
Accounts Payable and Accrued		34,000.00
General Reserve (created by Premiums received on Sale of Capital Stock)		36,000.00
Surplus		179,200.00
	$449,200.00	$449,200.00

The Land, Buildings, and Machinery are appraised at the date of the above Balance Sheets and show Sound Values as follows:

A	$180,000.00
B	140,000.00
C	170,000.00

The transactions constituting the net credits to Surplus Account during the year either direct or through Profit and Loss Account were as follows:

	A Company	B Company	C Company
Credit:			
Sales	$500,000.00	$300,000.00	$600,000.00
Book profit on sale of land not required for Company's purposes	10,000.00		
Interest on Bank Balances	1,000.00	3,000.00	1,800.00
Debit:			
Manufacturing charges including reasonable Depreciation	350,000.00	180,000.00	330,000.00
Interest paid	4,800.00	3,000.00	
Selling and General Expenses	50,000.00	36,000.00	66,000.00
Reserve for Plant Extension		18,000.00	
Sinking Fund Charge	2,000.00		
Balance	$104,200.00	$ 66,000.00	$205,800.00

(Dividends were paid by all of the Companies during the year, but the amounts do not concern the question.)

The above three Companies are consolidated by the formation of Company D, with an authorized Capital of $1,500,000.00 Preferred Stock, and $1,500,000.00 Common. The agreement provides that the vendor Companies should receive par in Preferred of Company D for the Net Tangible Assets, including Unexpired Insurance (using appraised values for Plant items), and receive an allowance for Goodwill payable in Common Stock of Company D, at par. Such allowance is to be calculated on the basis of a value equivalent to three times the net earnings from operations for the year, exclusive of any charges or credits for interest. The promoter in the matter has undertaken to dispose of $200,000.00 Preferred Stock of Company D at par, and is to receive as compensation for his services an award of $200,000.00 par value of Common Stock of Company D.

Prepare the Balance Sheet of Company D as at the opening of business after all the above transactions will have been carried out.

5.* The financial statement of the Z Company on January 1, 1932, after absorbing the X and Y Companies was prepared as follows:

	Assets	
Cash	$ 575,000.00	
Goodwill	3,428,000.00	
Plant Equipment	1,250,000.00	
Inventories	1,525,000.00	
Accounts Receivable	550,000.00	
Deferred Charges	12,000.00	
		$7,340,000.00
	Liabilities	
Notes Payable	$ 500,000.00	
Accounts Payable	840,000.00	
		1,340,000.00
	Proprietary Interest	
Preferred Capital Stock	$1,000,000.00	
Common Capital Stock	5,000,000.00	
		$6,000,000.00

The directors call you in to:

(a) Verify the goodwill item of $3,428,000.00, which seems unusually large in comparison to the other items; and they also instruct you to prepare:

(b) The opening journal entries on the books of the Z Company;

(c) The closing journal entries on the books of the X Company;

(d) The closing journal entries on the books of the Y Company;

You are given the following statements showing the financial condition of the X Company and the Y Company on December 31, 1931;

	X Company	Y Company
Assets		
Cash	$ 50,000.00	$ 25,000.00
Plant Equipment	1,000,000.00	250,000.00
Inventories	1,500,000.00	75,000.00
Accounts Receivable	500,000.00	150,000.00
Deferred Charges	10,000.00	2,000.00
	$3,060,000.00	$ 502,000.00

Liabilities		
Notes Payable	$ 500,000.00	
Accounts Payable	800,000.00	$ 140,000.00
	$1,300,000.00	$ 140,000.00
Proprietary Interest		
Capital Stock	$1,500,000.00	$ 100,000.00
Surplus	260,000.00	262,000.00
	$1,760,000.00	$ 362,000.00

You learn that $100,000 of the Accounts Payable of X Company was due to the Y Company and included by the latter in their Accounts Receivable. Furthermore, the X Company had borrowed $100,000 of the Y Company (included in X Company's Notes Payable) which the Y Company had discounted at banks. The inventories of the X Company include $250,000 of materials purchased from the Y Company on which the Y Company had made 20 per cent gross profit.

The stockholders of the Y Company were paid $500,000 in cash for their holdings; the stockholders of the X Company received the common stock of the Z Company in exchange for their holdings; and the preferred stock of the Z Company was sold to the public for cash at par.

XXV

1. Refer to XXIV, 1.

Prepare the consolidated balance sheet of the corporations R, S, and T one year after the acquisition of the stock of S and T by R. These are the same corporations which were dealt with in XXIV, 1. Assume that R Company has taken up its share of profits by debits to the investment accounts. Also assume:

(a) R has acquired the entire capital stock of S and of T.

(b) R has acquired 90 per cent of the stock of S and 80 per cent of the stock of T.

(c) R has acquired 80 per cent of the stock of S and 90 per cent of the stock of T.

Balance Sheets

December 31, 1931

	S	T
ASSETS		
Sundry Assets	$350,000.00	$500,000.00
Goodwill		50,000.00
	$350,000.00	$550,000.00
EQUITIES		
Sundry Liabilities	$110,000.00	$320,000.00
Capital Stock	100,000.00	200,000.00
Surplus	140,000.00	30,000.00
	$350,000.00	$550,000.00

Balance Sheet of R

December 31, 1931

	Assumption a	Assumption b	Assumption c
ASSETS			
Investment in Stock of S	$ 240,000.00	$ 234,000.00	$ 228,000.00
Investment in Stock of T	240,000.00	242,000.00	241,000.00
Sundry Assets	600,000.00	600,000.00	600,000.00
	$1,080,000.00	$1,076,000.00	$1,069,000.00
EQUITIES			
Sundry Liabilities	$ 400,000.00	$ 400,000.00	$ 400,000.00
Capital Stock	500,000.00	500,000.00	500,000.00
Surplus	180,000.00	176,000.00	169,000.00
	$1,080,000.00	$1,076,000.00	$1,069,000.00

2. Refer to XXIV, 1, and to XXV, 1:

Prepare consolidated balance sheets of corporations R, S, and T. The holding company, R, has not taken up the profits of the subsidiaries. Assume:

(a) That R has acquired the entire capital stock of S and T.

(b) That R has acquired 90 per cent of the stock of S and 80 per cent of the stock of T.

(c) That R has acquired 80 per cent of the stock of S and 90 per cent of the stock of T.

Note that one year has passed since acquisition.

The balance sheets of S and of T are as in XXV, 1. The balance sheet of R is as follows:

Balance Sheet of R

December 31, 1931

ASSETS		EQUITIES	
Investment in Stock of S	$ 180,000.00	Sundry Liabilities	$ 400,000.00
Investment in Stock of T	250,000.00	Capital Stock	500,000.00
Sundry Assets	600,000.00	Surplus	130,000.00
	$1,030,000.00		$1,030,000.00

3.* On January 1, 1930, the A. B. Company bought 90 per cent of the stock of the XY Company and 80 per cent of that of the PQ Company, two Subsidiary Companies which it thus controlled, and in fact, actually directed the policy and the general administration, the minority holding in each case being in the hands of the officers and employees of the Subsidiary Company or of other interests friendly to the A. B. Company. On June 30, 1930, the holdings in the XY Company were reduced to 80 per cent by the sale of 100 shares at $120.00 per share, to certain employees not theretofore stockholders, while in the case of the PQ Company, owing to the resignation of an officer, his holdings, consisting of 100 shares, were purchased at par, the holdings by the A. B. Company being thus increased to 90 per cent, so that on December 31, 1930, the proposition of holdings in the two Companies was just reversed.

Below are the Trial Balances of all three Companies (after closing) at December 31, 1930.

Prepare Consolidated Balance Sheet, showing correctly:

(1) The Liability to the Minority Stockholders in respect of their Equity.

(2) The proportion of Surplus and Profits appertaining to the Stockholders of the A. B. Company.

(3) The Goodwill of the combined Companies.

Assume that the Profits Earned by the XY Company and PQ Company, respectively, to June 30, 1930, were exactly 50 per cent of the Profits for the complete year.

Trial Balances at December 31, 1930

Particulars	A.B. Co.		XY Co.		PQ Co.	
Properties			$ 85,000		$ 75,000	
Goodwill	$100,000					
Stockholdings:						
In XY Co.—						
800 Shares (Book Value)	115,000[a]					
In PQ Co.—						
900 Shares at Cost	82,000					
Current Assets	132,000		135,000		90,000	
Capital Stock:						
A.B. Co. 3000 Shares		$300,000				
XY Co. 1000 Shares				$100,000		
PQ Co. 1000 Shares						$100,000
Accounts Payable		125,000		30,000		10,000
Surplus at January 1		50,000		60,000		10,000
1930 Profits		44,000[b]		45,000		35,000
Dividends paid in December 1930	30,000		40,000		25,000	
Current Accounts	60,000			25,000		35,000
	$519,000	$519,000	$260,000	$260,000	$190,000	$190,000

[a] After crediting the proceeds of the 100 Shares sold, prior to which the Investment had been valued at Cost.

[b] Dividends received from Subsidiary Companies, less Expenses of Parent Company.

4.* Company W is a holding company, controlling three subsidiaries, X, Y, and Z, having acquired the majority stock in these companies on January 1, 1922, June 30, 1924, and July 1, 1920, respectively.

The holding Company W has never adjusted its investment accounts with the subsidiaries to book values, but it has carried to surplus account the dividends received from time to time.

The following balance sheets are assumed to reflect the true financial condition of each company, from which and other data given herein, prepare:

(a) Statement of surplus of subsidiary companies at date of stock acquisition.

(b) Consolidated working papers.

(c) Consolidated balance sheet.

Company W (Holding Company)

BALANCE SHEET

December 31, 1925

ASSETS		LIABILITIES	
Company X stock (80%) cost	$ 850,000.00	Capital stock	$1,125,000.00
Company Y stock (75%) cost	600,000.00	Funded debt	500,000.00
Company Z stock (90%) cost	675,000.00	Surplus	625,000.00
All other assets	125,000.00		
	$2,250,000.00		$2,250,000.00

Company X

BALANCE SHEET

December 31, 1925

ASSETS		LIABILITIES	
Capital assets	$450,000.00	Capital stock	$550,000.00
Current assets	525,000.00	Current liabilities	75,000.00
		Surplus	350,000.00
	$975,000.00		$975,000.00

Note: The surplus of Company X is composed of:

Balance January 1, 1922	$ 75,000.00
Profits since January 1, 1922	440,000.00
	$515,000.00
Dividends paid	165,000.00
Balance as above	$350,000.00

Company Y

BALANCE SHEET

December 31, 1925

ASSETS		LIABILITIES	
Capital assets	$480,000.00	Capital stock	$725,000.00
Current assets	475,000.00	Current liabilities	90,000.00
Deferred charges	40,000.00	Surplus	180,000.00
	$995,000.00		$995,000.00

Note: The surplus of Company Y is composed of:

Balance January 1, 1923	$270,000.00
Profits since January 1, 1923	720,000.00
	$990,000.00
Dividends paid in 1923	810,000.00
Balance as above	$180,000.00

The profits of Company Y were earned as follows:

1923 Profits	$540,000.00
1924 Loss	90,000.00
1925 Profits	270,000.00

One-half of the loss in 1924 was sustained during the first six months of that year.

Company Z

BALANCE SHEET

December 31, 1925

ASSETS		LIABILITIES	
Capital assets	$650,000.00	Capital stock	$700,000.00
Current assets	240,000.00	Current liabilities	270,000.00
Deficit	80,000.00		
	$970,000.00		$970,000.00

Note: The deficit of Company Z is composed of:

Balance January 1, 1918	$220,000.00
Dividends paid in 1925	450,000.00
	$670,000.00
Profits earned equally each month from January 1, 1918 to December 31, 1925	$590,000.00
Balance as above	$ 80,000.00

5.* From the following three Trial Balances prepare a Consolidated Balance Sheet as at December 31, 1930, in the form you would draw it up for presentation to the Stockholders of the Parent Company (The Safety Razor Company) showing as separate items therein (a) the total Goodwill of the Combined Companies; and (b) the Net Profits accruing to the new Corporation, viz., to the Safety Razor Company.

Safety Razor Company

TRIAL BALANCE AT DECEMBER 31, 1930

	Dr.	Cr.
Preferred Stock		$1,500,000.00
Common Stock		1,500,000.00
Investments in Subsidiary Companies—4,000 Shares of Stock of L.W. Co. and 4,000 Shares of Stock of Steel Blade Co., both of $100.00 each at Cost	$2,500,000.00	
Accounts Payable		20,000.00
Dividends from Subsidiary Companies		100,000.00
Administration Expenses	25,000.00	
L.W. Co. Current Account	100,000.00	
Steel Blade Company Advances	150,000.00	
Cash	270,000.00	
Organization Expenses	75,000.00	
	$3,120,000.00	$3,120,000.00

L. W. COMPANY

Trial Balances at December 31, 1930

	Dr.	Cr.
Properties and Plant	$ 325,000.00	
Goodwill	250,000.00	
Investment in Steel Blade Co.—2,000 Shares of a Par Value of $100.00 each cost $300,000.00	400,000.00	
Inventories	250,000.00	
Receivables	195,000.00	
Cash	90,000.00	
Capital Stock (4,000 Shares)		$ 400,000.00
Accounts Payable		125,000.00
Steel Blade Company		175,000.00
Surplus (Includes $100,000.00 added to Book Value of Investment in Steel Blade Co.)		710,000.00
Safety Razor Co.		100,000.00
	$1,510,000.00	$1,510,000.00

STEEL BLADE COMPANY

Trial Balance at December 31, 1930

	Dr.	Cr.
Goodwill	$ 50,000.00	
Property and Plant	325,000.00	
Inventories	190,000.00	
Receivables, General	105,000.00	
L. W. Company	195,000.00	
Cash	10,000.00	
Capital Stock (6,000 Shares)		$600,000.00
Accounts Payable		90,000.00
Safety Razor Company		150,000.00
Surplus or Deficit		35,000.00
	$875,000.00	$875,000.00

In the preparation of your Consolidated Balance Sheet be guided by the following assumed facts:

(1) That the Safety Razor Company was formed on March 28, 1930, and acquired its stock ownership in the two subsidiary Companies, as shown in its Trial Balance on April 1, 1930, and that the stock of the Steel Blade Company owned by the L. W. Company was acquired January 1, 1930.

(2) That at January 1, 1930, the L. W. Company had a Surplus of $605,000.00 and the Steel Blade Company a Deficit of $50,000.00.

(3) That no Inventory was taken of either the L. W. Company or the Steel Blade between January 1 and December 31, 1930, the business of the Companies being continued without interruption, notwithstanding the change in ownership of the Capital Stocks as indicated above.

(4) That prior to December 31, 1930, the L. W. Company declared a dividend of $100,000.00 payable to the Parent Company which was duly taken up on the books of both Companies, being passed through the Current Accounts and charged against the Surplus of the L. W. Company prior to December 31, 1930.

(5) That the differences in the Current Accounts between the Steel Blade Company and the L. W. Company represents as to $10,000.00 Merchandise in Transit, and as to the remaining $10,000.00 a charge for Rental of Warehouse for the last six months of 1930, which has been credited to the Rent Account on the books of the Steel Blade Company.

(6) That it is estimated on reliable authority which can be accepted as final that from January 1 to March 31, 1930, the Net Profits of the L. W. Company amounted to $30,000.00, while during the same period the Steel Blade Company lost $15,000.00.

XXVI

1.* The Cincinnati Manufacturing Company acquired the Toledo and Youngstown Manufacturing Companies on January 1, 1930.

From the trial balances and other information submitted, you are requested to prepare a Consolidated Balance Sheet and Profit and Loss Statement for the year 1930.

Debits	Cincinnati Mfg. Co.	Toledo Mfg. Co.	Youngstown Mfg. Co.
Cash	$ 15,000.00	$ 5,000.00	$ 11,000.00
Accounts Receivable	65,000.00	21,000.00	40,000.00
Notes Receivable	30,000.00	5,000.00	5,000.00
Plant and Machinery	100,000.00	60,000.00	80,000.00
Capital Stocks Owned—At Cost			
Toledo Company	100,000.00		
Youngstown Company	150,000.00		
Inventory—January 1, 1930	15,000.00	10,000.00	15,000.00
Raw Material Purchases	60,000.00	38,000.00	49,000.00
Labor	43,000.00	35,000.00	35,000.00
Manufacturing Expenses	22,000.00	17,000.00	16,000.00
Selling Expenses	10,000.00	6,000.00	10,000.00
Administrative Expenses	25,000.00	10,000.00	10,000.00
Dividends Paid	45,000.00	10,000.00	20,000.00
Totals	$680,000.00	$217,000.00	$291,000.00

Credits			
Accounts Payable	$ 15,000.00	$ 10,500.00	$ 36,000.00
Notes Payable	5,000.00	9,500.00	9,000.00
Capital Stock	450,000.00	50,000.00	80,000.00
Surplus—January 1, 1930	30,000.00	27,000.00	33,000.00
Sales	150,000.00	120,000.00	133,000.00
Dividends Received	30,000.00		
Totals	$680,000.00	$217,000.00	$291,000.00

The inventories at December 31, 1930, were as follows:

Cincinnati Company	$30,000.00
Toledo Company	15,000.00
Youngstown Company	20,000.00

Provide 10-per-cent depreciation on total Plant and Machinery.

One-half of the Cincinnati inventory at December 31, 1930, represented goods purchased from the Toledo Company which were billed at cost plus 25 per cent, and so carried as accounts receivable by the Toledo Company.

Notes Receivable of the Cincinnati Company included money advanced to Toledo and Youngstown Companies in the amounts of $9,500.00 and $9,000.00 respectively.

In this particular case, federal income taxes need not be considered.

2.* Company A conducts a retail coal business. It was organized January 1, 1928, and on that date purchased a 95-per-cent interest in the stock of Company B for cash in the amount of $136,800.00, this price being the book value of the stock at the time of purchase plus an allowance to reflect the true value of coal acreage.

Coal acreage owned by Company B contained 1,000,000 tons of coal when acquired, of which 100,000 tons have been mined each year.

Until the mine is exhausted, all coal is to be sold to Company A at "cost plus 10-per-cent profit." Included in such cost for 1928, by mutual agreement, was an item of $12,000.00 set aside to purchase new equipment.

Company A purchases all its coal from Company B, and the inventory of coal on hand at retail yards on December 31, 1928, priced at cost, was $28,050.00.

Company B declared a dividend of 10 per cent, payable December 30, 1928, in Common Stock, the entry for which has not been recorded.

On December 31, 1928, Company B issued $30,000.00 par value of Preferred Stock to Company A, accepting in full payment thereof its demand note for $25,000.00. This transaction has not been recorded.

TRIAL BALANCES—DECEMBER 31, 1928

COMPANY A

	Debits	Credits
Cash	$ 19,000.00	$
Retail Yards—(Equipment)	183,000.00	
Allowance for Depreciation		12,000.00
Coal Purchased	187,000.00	
Common Stock Company B (95% int.)	136,800.00	
Administrative and Selling Expenses	15,000.00	
Delivery Expense	35,000.00	
Depreciation	12,000.00	
Bonds Company B ($10,000 face value)	11,000.00	
Account Payable—Company B		20,000.00
Common Stock (Authorized and Issued)		150,000.00
Sales		280,000.00
Paid-in Surplus		136,800.00
	$598,800.00	$598,800.00

COMPANY B

	Debits	Credits
Coal Acreage	$100,000.00	$
Plant and Equipment	70,000.00	
Cash	18,000.00	
Reserve to Purchase New Equipment		12,000.00
Sales		187,000.00
Allowance for Depreciation		30,000.00
Allowance for Depletion		40,000.00
Account Receivable—Company A	20,000.00	
Special Cash Fund (for New Equipment)	12,000.00	
Depreciation	7,000.00	
Depletion	10,000.00	
Mining Expense	153,000.00	
Interest paid on Bonds	3,000.00	
Preferred Stock authorized ($100 par value)		50,000.00
Common Stock authorized ($100 par value)		100,000.00
Surplus January 1, 1928		14,000.00
Bonded Debt		50,000.00
Common Stock Unissued	40,000.00	
Preferred Stock Unissued	50,000.00	
	$483,000.00	$483,000.00

Required: Consolidated Balance Sheet and Operating Statement of Companies A and B, together with journal entries covering all necessary adjustments and eliminations.

Income tax liability need not be computed.

3.* Trial balances of three affiliated companies taken as of December 31, 1931, before closing, were as follows:

Debits	A	B	C
Cash	$ 162,030	$ 75,820	$ 101,640
Accounts Receivable	125,640	120,400	124,208
Notes Receivable	50,000		
Raw Material, January 1	41,285	32,648	45,614
Purchases Raw Material	295,850	213,380	270,690
Labor	225,610	175,819	195,713
Manufacturing Burden	218,450	164,372	168,440
Process Inventory, January 1	61,375	47,610	54,709
Finished Goods, January 1	40,650	33,819	47,480
Selling Expenses	98,480	75,210	92,214
General Expenses	72,350	39,394	54,582
Plant and Equipment	842,000	625,000	650,090
Investments:			
Stock Company B	560,000		
Stock Company C	750,000		
Sinking Fund Trustees	30,000		
Discount on Bonds	22,500		
Dividends Receivable			
Bond Interest (6 months)	15,000		
	$3,611,220	$1,603,472	$1,805,380

Credits	A	B	C
Capital Stock	$1,500,000	$ 400,000	$ 500,000
Notes Payable	60,000	50,000	
Accounts Payable	54,785	42,610	61,815
First Mortgage Bonds	500,000		
Sinking Fund Reserve	30,000		
Depreciation of Assets	277,585	175,000	215,600
Sales (net)	1,031,235	735,862	852,965
Surplus January 1	157,615	200,000	175,000
	$3,611,220	$1,603,472	$1,805,380

Company A owns 80 per cent of the Capital Stock of Company B, which was acquired at $175 per share, the par value of which was $100. At the time of acquisition the capital stock of Company B was $400,000 and the surplus was $150,000.

All of the $500,000 capital stock of Company C was acquired at a cost of $750,000. The surplus of Company C at acquisition of stock was $133,000.

The First Mortgage Bonds of Company A were dated January 2, 1929, and made payable twenty years thereafter. Interest thereon at six per cent is payable semiannually. These bonds were sold at 95 per cent of face value.

No debits or credits were made to Surplus account during the current year.

Interest on Bonds is to be set up, and a reserve of $15,000 for Sinking Fund is to be provided. Discount on bonds is to be amortized one-twentieth each year.

Accruals, other than interest on bonds, and deferred items are not necessary for present purposes.

Inventories at December 31, 1931, were as follows:

	A	B	C
Raw Material	$ 50,790	$ 36,292	$ 51,478
Goods in Process	68,915	51,816	60,834
Finished Goods	48,210	38,782	54,615
	$167,915	$126,890	$166,927

Inventories of Companies B and C include purchases from Company A, on which the latter company made a profit. The profit included in B's inventory was estimated at $5,000 and in C's inventory at $6,000.

At the close of the year 1931, dividends on Capital Stock were declared by the several companies as follows: Company A 10 per cent, Company B 10 per cent, Company C 15 per cent. All dividends payable on January 15, 1932. No Capital Stock was issued during the year 1931.

The notes payable of Company B were given to Company A for purchases from that company.

From the given data candidates are required to prepare a statement of the consolidated operations for the current year; the adjusted Surplus; and a consolidated Balance Sheet, showing Goodwill; also the minority interests.

4.* Companies A, B, and C, Ohio corporations, entered into agreement to consolidate their interests, and in furtherance of this object Company D was organized under the laws of Ohio with a declared capital of $500,000, represented by 100,000 shares of no-par common stock.

It is mutually agreed on that Company D is to take over the assets and assume the liabilities of Companies A, B, and C, as shown by the balance sheets of those companies at December 31, 1931, exclusive of investments, and after adjusting the plant and machinery to appraised values.

The Balance Sheets of the several Companies at December 31, 1931, before adjustment of plant and machinery, were as follows:

Assets	A	B	C
Cash	$ 15,000	$ 10,000	$ 6,200
Bills Receivable	18,500	12,000	5,000
Accounts Receivable	155,000	110,000	61,000
Raw Material	64,500	50,000	25,000
Finished Goods	21,000	15,000	8,600
Goods in Process	25,000	16,000	12,000
Office Building and Land	10,000		
Factory Land and Building	150,000	100,000	75,000
Machinery	100,000	75,000	50,000
Tools	3,500	1,500	1,000
Furniture and Fixtures	1,000	500	400
Investment (stocks)	175,000	144,000	
Deferred Charges	1,500	1,000	800
Total	$740,000	$535,000	$245,000

Liabilities			
Bills Payable	$ 12,000	$ 15,000	$ 8,000
Accounts Payable	100,700	89,000	82,600
Accrued Wages	3,800	2,500	1,600
Accrued Taxes	5,500	3,500	1,800
Depreciation	50,000	35,000	20,000
Capital Stock	500,000	300,000	100,000
Surplus	68,000	90,000	31,000
Total	$740,000	$535,000	$245,000

The Investment account of Company A shows the cost of 1,500 shares of Company B's stock having a par value of $100 per share. The Investment account of Company B shows the cost of 500 shares of Company A's stock, having a par value of $100 per share, and 500 shares of Company C's stock, par value of $100 per share. Company B paid $76,000 for its holdings of Company A's stock and $68,000 for Company C's stock.

The following appraisals were mutually agreed on:

	A	B	C
Office Land and Buildings	$ 10,000		
Factory Land and Buildings	135,000	$ 90,000	$ 70,000
Machinery	80,000	60,000	40,000
Total	$225,000	$150,000	$110,000

The entire amount of the authorized stock of Company D is to be given to the individual stockholders of Companies A, B, and C in proportion to their several equities.

From the given data you are required to prepare:

(1) A statement showing the equities of the Companies A, B, and C, severally, and the percentage that the individual stockholders of each company is entitled to receive; also the number of shares of new stock to be given to the individual stockholder of each company in exchange for each share of his old stock. This statement should clearly show how you arrive at your results.

(2) Balance Sheet of Company D at January 1, 1932, after effecting the consolidation.

(3) Work sheet, on which the various amounts of the several companies may be combined and the adjustments made as a whole, not for each company separately, except as a supplementary statement at the bottom of the sheet.

NOTE: Before solving this problem, refer to the section of Chapter XXVIII which takes up Reciprocal Ownership.

5.* The "X" Manufacturing Company holds as "Investments" a controlling interest in the capital stock of four affiliated companies; and one of the four companies ("C" Co.) holds, in the same manner, a controlling interest in the capital stock of a fifth affiliated company ("D" Co.).

All of the companies are parties to a consolidation agreement whereby the "X" Manufacturing Company is to increase its capitalization, take over the affiliated companies and operate them as branch works, and exchange the outstanding old certificates of capital stock of all the companies for new certificates of capital stock (preferred and common, par value $100.00 per share) of the reorganized "X" Manufacturing Company, in accordance with the terms of the consolidation agreement.

Balance sheets of the several companies at the date of merger are submitted hereunder.

Certificates for shares of capital stock in the reorganized "X" Manufacturing Company are to be issued on the following terms:

	New Shares in Exchange for Each Share of Old Capital Stock		"X" Mfg. Co. Holds as Investments (Par Value)
	Preferred	Common	
"X" Mfg. Co.	1.22	.91	
"A" Co.	1.27	1.11	2,002 shares
"B" Co.	.21	.06	2,021 "
"C" Co.	.81	.59	2,133 "
"D" Co. (common)	.56	.75	..... "
"D" Co. (preferred)	1.00	....	..... "
"E" Co.	2.11	1.96	1,751 "
"C" Co. holds shares of "D" Co.	....	....	1,530 "

The par value of "B" Company shares is $25.00 each. The par value of all other companies' shares is $100.00 each.

At the date of merger, 100 shares of the "E" Company capital stock and 50 shares of the "D" Company preferred capital stock had not been deposited with the Trustee for exchange. The "D" Company preferred capital stock carried 6 per cent cumulative dividends, and these dividends had been "passed" for the preceding three years. With these exceptions, all other certificates had been deposited with the Trustee for exchange.

Fractional shares of new capital stock are found to aggregate:

On preferred	$7,691.00
On common	$4,059.00

An option is given these stockholders to receive the amounts in cash or to pay the difference for additional shares at par value. (Note: Assume all elected to receive cash.)

The reorganized "X" Manufacturing Company executes a first mortgage on its real estate for $500,000.00. The bonds (6 per cent) are sold at 95; part of the cash held by the trustee is to be used to take up and retire the underlying bonds of the "D" Company; the remainder of cash is available for working capital.

From the facts stated you are asked to submit:

(a) Balance sheet of the reorganized "X" Manufacturing Company showing a capitalization of preferred and common stock consistent with requirements.

(b) Trial balance of the general ledger of the reorganized "X" Manufacturing Company (using balance sheet accounts only), showing controlling accounts for current assets and liabilities of the branch works. Notes and bonds payable are to be carried on the home office books.

Liabilities			
Bills Payable	$ 12,000	$ 15,000	$ 8,000
Accounts Payable	100,700	89,000	82,600
Accrued Wages	3,800	2,500	1,600
Accrued Taxes	5,500	3,500	1,800
Depreciation	50,000	35,000	20,000
Capital Stock	500,000	300,000	100,000
Surplus	68,000	90,000	31,000
Total	$740,000	$535,000	$245,000

The Investment account of Company A shows the cost of 1,500 shares of Company B's stock having a par value of $100 per share. The Investment account of Company B shows the cost of 500 shares of Company A's stock, having a par value of $100 per share, and 500 shares of Company C's stock, par value of $100 per share. Company B paid $76,000 for its holdings of Company A's stock and $68,000 for Company C's stock.

The following appraisals were mutually agreed on:

	A	B	C
Office Land and Buildings	$ 10,000		
Factory Land and Buildings	135,000	$ 90,000	$ 70,000
Machinery	80,000	60,000	40,000
Total	$225,000	$150,000	$110,000

The entire amount of the authorized stock of Company D is to be given to the individual stockholders of Companies A, B, and C in proportion to their several equities.

From the given data you are required to prepare:

(1) A statement showing the equities of the Companies A, B, and C, severally, and the percentage that the individual stockholders of each company is entitled to receive; also the number of shares of new stock to be given to the individual stockholder of each company in exchange for each share of his old stock. This statement should clearly show how you arrive at your results.

(2) Balance Sheet of Company D at January 1, 1932, after effecting the consolidation.

(3) Work sheet, on which the various amounts of the several companies may be combined and the adjustments made as a whole, not for each company separately, except as a supplementary statement at the bottom of the sheet.

NOTE: Before solving this problem, refer to the section of Chapter XXVIII which takes up Reciprocal Ownership.

5.* The "X" Manufacturing Company holds as "Investments" a controlling interest in the capital stock of four affiliated companies; and one of the four companies ("C" Co.) holds, in the same manner, a controlling interest in the capital stock of a fifth affiliated company ("D" Co.).

All of the companies are parties to a consolidation agreement whereby the "X" Manufacturing Company is to increase its capitalization, take over the affiliated companies and operate them as branch works, and exchange the outstanding old certificates of capital stock of all the companies for new certificates of capital stock (preferred and common, par value $100.00 per share) of the reorganized "X" Manufacturing Company, in accordance with the terms of the consolidation agreement.

Balance sheets of the several companies at the date of merger are submitted hereunder.

Certificates for shares of capital stock in the reorganized "X" Manufacturing Company are to be issued on the following terms:

	New Shares in Exchange for Each Share of Old Capital Stock		"X" Mfg. Co. Holds as Investments (Par Value)
	Preferred	Common	
"X" Mfg. Co.	1.22	.91	
"A" Co.	1.27	1.11	2,002 shares
"B" Co.	.21	.06	2,021 "
"C" Co.	.81	.59	2,133 "
"D" Co. (common)	.56	.75	..... "
"D" Co. (preferred)	1.00	....	..... "
"E" Co.	2.11	1.96	1,751 "
"C" Co. holds shares of "D" Co.	....	....	1,530 "

The par value of "B" Company shares is $25.00 each. The par value of all other companies' shares is $100.00 each.

At the date of merger, 100 shares of the "E" Company capital stock and 50 shares of the "D" Company preferred capital stock had not been deposited with the Trustee for exchange. The "D" Company preferred capital stock carried 6 per cent cumulative dividends, and these dividends had been "passed" for the preceding three years. With these exceptions, all other certificates had been deposited with the Trustee for exchange.

Fractional shares of new capital stock are found to aggregate:

On preferred	$7,691.00
On common	$4,059.00

An option is given these stockholders to receive the amounts in cash or to pay the difference for additional shares at par value. (Note: Assume all elected to receive cash.)

The reorganized "X" Manufacturing Company executes a first mortgage on its real estate for $500,000.00. The bonds (6 per cent) are sold at 95; part of the cash held by the trustee is to be used to take up and retire the underlying bonds of the "D" Company; the remainder of cash is available for working capital.

From the facts stated you are asked to submit:

(a) Balance sheet of the reorganized "X" Manufacturing Company showing a capitalization of preferred and common stock consistent with requirements.

(b) Trial balance of the general ledger of the reorganized "X" Manufacturing Company (using balance sheet accounts only), showing controlling accounts for current assets and liabilities of the branch works. Notes and bonds payable are to be carried on the home office books.

BALANCE SHEETS OF THE SEVERAL COMPANIES AT DATE OF MERGER

ASSETS	"X" Mfg. Co.	"A" Co.	"B" Co.	"C" Co.	"D" Co.	"E" Co.
Real estate	$ 935,000.00	$300,000.00	$ 3,200.00	$ 47,000.00	$ 82,000.00	$100,500.00
Property account:						
Buildings, structures, machinery, equipment, etc.	1,475,000.00	175,000.00	45,650.00	117,000.00	230,000.00	197,500.00
Goodwill, patents, etc.	250,000.00	20,000.00	....	115,000.00	150,000.00	175,000.00
Livestock	35,000.00	30,000.00	....	3,000.00	2,000.00	11,000.00
Office fixtures	1,000.00	300.00	50.00	400.00	500.00	600.00
Investments in corporate stocks of affiliated companies	639,125.00	....	....	153,000.00	....	....
Fire insurance fund (cash and investments)	15,000.00	....	....	....	....	....
Cash at banks and in hand	26,000.00	3,000.00	300.00	6,000.00	4,300.00	19,000.00
Sundry debtors—Customers	120,000.00	33,000.00	6,700.00	50,000.00	23,000.00	45,000.00
Due from affiliated companies	68,000.00	....	....	4,000.00	....	....
Inventories	310,000.00	35,000.00	1,100.00	15,000.00	35,000.00	115,000.00
Deferred charges	30,000.00	1,700.00	....	600.00	1,200.00	1,400.00
Organization expenses (merger)	25,000.00	....	....	....	....	....
	$3,929,125.00	$598,000.00	$ 57,000.00	$511,000.00	$528,000.00	$665,000.00
LIABILITIES AND CAPITAL						
Capital stock (common)	$3,000,000.00	$400,000.00	$100,000.00	$350,000.00	$300,000.00	$350,000.00
Capital stock (preferred)	....	....	....	....	100,000.00	....
Bonds payable	....	....	....	....	50,000.00	....
Notes payable	415,000.00	....	....	....	....	25,000.00
Current liabilities and accruals	164,185.00	11,500.00	....	4,500.00	30,000.00	50,000.00
Dividend payable	....	....	....	....	....	17,500.00
Accrued interest—Bonds	....	....	....	....	1,000.00	....
Accrued interest—Notes	3,775.00	....	....	....	....	250.00
Due "X" Mfg. Co.	....	30,000.00	2,500.00	18,000.00	7,000.00	10,500.00
Due "C" Co.	....	....	....	....	4,000.00	....
Fire insurance reserve	98,000.00	....	....	....	....	....
Surplus (or deficit)	248,165.00	156,500.00	(45,500.00)	138,500.00	36,000.00	211,750.00
	$3,929,125.00	$598,000.00	$ 57,000.00	$511,000.00	$528,000.00	$665,000.00

XXVII

1. Using the 360-day table, compute interest as follows:
   (a) on $1,456.00 for 37 days at 4½%.
   (b) on $9,876.54 for 123 days at 7%.
   (c) on $78,200.00 for 119 days at 5½%.
   (d) on $100,000.00 for 365 days at 7%.

2. Verify any one of the computations in XXVII, 1, except (d) by (a) the cancellation method of calculating interest, and (b) the 6-per-cent method.

3. A note for $10,000.00 was made out to run 120 days and to bear interest at 6 per cent per annum. When the note was 45 days old it was discounted at 7 per cent per annum on the maturity value. What was the discount and what was the "proceeds"? Use the interest table.

4. A mortgage for $5,000.00 bears interest at the rate of 6 per cent per annum, or 3 per cent per half year. The mortgagor is to pay exactly $500.00 each six months until the debt is settled in full with interest. The last payment will be for the amount owed to settle the debt, rather than for exactly $500.00.

On the supposition that the mortgagor makes his payments punctually, trace the history of this debt (a) if interest is calculated on partial payments by the United States rule, and (b) if interest is reckoned by the Merchants' rule.

5. Find the average due date of the following account:

T. V. Doe

1931				1931		
May	5	Mdse. n/60	$1,500.00	May 7	Return	$300.00
June	3	Mdse. n/30	3,000.00			
	12	Mdse. n/30	1,200.00			

6. T. V. Doe wishes to settle the account averaged in XXVII, 5, by giving a note dated on the average due date. The note is to be discounted at 6 per cent per annum for the 90 days it is to run. What should be the face of the note? Assume the 360-day year.

7. The agreement for the combination of several competing firms calls for the valuation of the goodwill of each by capitalizing earnings in excess of 8 per cent of the value of the net tangible assets at the rate of 10 per cent. By earnings is meant the average net profit for the past five years. What is the goodwill of each of the corporations, P, Q, and R? You discover that the following information is available:

	Company A	Company B	Company C
Net Tangible Assets	$1,200,000.	$6,000,000.	$3,000,000.
Average Net Earnings	100,000.	550,000.	230,000.

8. A will provides that a dowry for a daughter shall be provided by making a deposit in a savings bank to accumulate at 4 per cent per annum

compounded semiannually. The money is to go to the young lady at the interest date next after her 25th birthday. The executor makes the deposit January 2, 1930, when the girl is 12 years and 2 months old. The bank pays interest as of the first day of January and July, but allows interest from the first of the year on deposits received by the 10th of January. How much should the executor deposit to provide a dowry of $10,000.00?

9. A man, aged 22, has a dependent mother for whom he wishes to provide in case of his death. He also wishes to save as much as possible for his own old age. The agent of a non-participating company suggests that the young man take out a twenty-year endowment insurance policy. The annual premium would be $40.35 per thousand. As an alternative the agent suggests a twenty-payment life policy, the annual premium of which is $21.40 per thousand. The young man notices that the annual premium on a thousand dollars of ordinary life insurance would be only $14.08. On further inquiry, it develops that the cash surrender value of the straight or ordinary life policy after 20 years would be $189.28 per thousand, while the cash surrender value of the 20-payment life policy would be $427.62. The endowment insurance policy would mature in 20 years and yield $1,000.00 at that time. The young man wonders whether he had better take the endowment policy, or take one of the others and deposit regularly in a savings bank the difference in premium between the ordinary life policy or the 20-payment life policy and the premium of the endowment policy. The savings bank will pay 4 per cent per annum, compounded annually. By which method would the young man's accumulation be greatest at the age 42?

10. A man wishes to provide himself with an annuity of $500.00 each six months for the next twenty years, the first payment to be received at the end of 6 months. In order to save the commission of the insurance company, the man makes a deposit in a savings bank which pays interest twice a year at the rate of 4 per cent per annum. How much should the man deposit that he may draw $500.00 semiannually for 20 years?

XXVIII

1. An asset has an initial value of $2,500.00 and an estimated scrap value of $100.00. The estimated service life is 10 years. Make a table to show the annual debit to Depreciation, the annual credit to Reserve for Depreciation, the Total of the Reserve for Depreciation at the end of each year, and the Residual Value of the asset at the end of each year, if depreciation is measured by (a) the straight-line method, (b) the fixed-per-cent-of-diminishing-value method, (c) the sum-of-service-periods method, (d) the sinking-fund method, (e) the annuity method. Note that the 10th root of .04 is 0.724779. Use 4 per cent for the interest rate in sinking fund and annuity calculations.

2. Compute the composite rate of depreciation as a per cent of total cost of the assets, and find the average expectation of life of the assets of a corporation whose fixed assets are as follows:

	Cost	Estimated Scrap Value	Estimated Life in Years
1. Concrete Buildings	$1,000,000.00		50
2. Brick Buildings	600,000.00	$25,000.00	25
3. Heavy Machinery	900,000.00	40,000.00	20
4. Light Machinery	800,000.00	50,000.00	15
5. Sundry Equipment	120,000.00	5,000.00	10

3. Compute the price of a 4½ per cent bond for $10,000.00. It has exactly ten years to run and is to be priced to yield 4 per cent. The interest is payable semiannually.

4. A corporation issues on June 1, 1924, $1,000,000.00 of first mortgage 6-per-cent gold bonds, receiving therefor $900,000.00. These bonds are to be retired as follows: on June 1, 1927, and 1928, $100,000.00 each year; on June 1, 1929, 1930, 1931, and 1932, $150,000.00 each year; and the balance June 1, 1933. Prepare a table showing the annual amortization of the discount by the straight-line method.

5. The B corporation issues $3,000,000.00 in notes January 1, 1930. These notes fall due serially, $1,000,000.00 January 1, 1933, $1,000,000.00 January 1, 1934, and $1,000,000.00 January 1, 1935. The corporation receives for the issue $3,140,000.00. Using the pages from a bond table in Chapter V, Figure 32, find the approximate yield of these notes. The coupon rate of interest is 5 per cent payable semiannually.

6. A banker, desirous of bidding for the notes described in XXVIII, 5, asks you to find what he may offer so as to realize 4½ per cent on his investment in the entire issue. What should he offer as of January 1, 1930?

7.* A clothing store carries fire insurance to the amount of $30,000.00 on a stock of $50,000.00. The policies contain the 80 per cent coinsurance clause. State:

(a) The amount collectible if a partial loss of $15,000.00 were suffered.
(b) The amount collectible if a total loss occurred.

8. A corporation offers to pay to its president and factory superintendent bonuses of 3 per cent and 2 per cent respectively of the net profits after deducting the bonuses, the federal income tax (12 per cent), and the sinking fund installment ($15,000.00). What was the bonus of each in 1930 when the profits before deducting the bonuses and the tax were $85,000.00?

XXIX

1. Refer to XXVIII, 1.

Make a line graph to show the annual depreciation charge for each method of measuring depreciation.

2. Refer to XXVIII, 1.

Make a line graph that shows the residual value of the asset at the end of each period for each method of measuring depreciation.

3. The following figures represent the population of the United States in millions at the various census dates. Prepare line graphs on the ordinary Cartesian coordinate paper and on semi-logarithmic paper to represent the growth of population in "Continental United States."

1790	3.9	1840	17.0	1890	62.9
1800	5.3	1850	23.2	1900	76.0
1810	7.2	1860	31.4	1910	92.0
1820	9.6	1870	38.6	1920	105.7
1830	12.9	1880	50.2	1930	122.8

4. Using the data in XXIX, 3, prepare a bar chart to illustrate the growth of population in continental United States.

5. Make a cross-hatched bar chart to illustrate the following data taken from the Census of Manufactures:

	1927	1925	1923	1921	1919	1914
Persons Engaged	9,783,438	9,769,868	10,193,989	8,265,821	10,688,849	8,117,895
Proprietors and Firm Members	132,681	132,988	148,315	172,871	250,571	259,172
Salaried Officers and Employees	1,301,002	1,255,369	1,269,028	1,146,380	1,438,219	962,533
Wage Earners (average number)	8,349,755	8,381,511	8,776,646	6,946,570	9,000,059	6,896,190

GLOSSARY

Acceptance: a bill of exchange which has been accepted by the drawee, and has thus become the obligation of the acceptor.

Acceptance, Bank: an acceptance of which the acceptor is a bank or banking organization.

Acceptance, Trade: an acceptance made by the purchaser of merchandise upon a bill of exchange drawn by the seller.

Account: a record of business transactions and events relating to one particular person, organization, or thing, kept in such a way as to separate the increases from the decreases; a statement, such as a "Profit and Loss Account."

Account, Deficiency: a statement in the form of an account to show the expected gains and losses in the liquidation of a business organization, and to indicate by whom such losses will be borne.

Account, Drawing (or Personal): an account recording the withdrawals of a sole proprietor or of a partner from the business which he owns in whole or in part, and his credits for salary, interest, bonus, share of profits, and/or additional investment during the period.

Account, Mixed: an account recording both real and nominal elements.

Account, Nominal: an account recording some income or expense. Such an account is periodically closed directly or indirectly into Profit and Loss.

Account of Proceedings: a report rendered to the court by the personal representative of the deceased, describing all the transactions for the estate.

Account, Personal: an account with a person or organization; a synonym for drawing account.

Account, Real: an account with an asset, a liability, or invested capital.

Account Receivable: a personal account which is to be paid to the organization to which it is an account receivable; in the best usage the term is confined to accounts with trade debtors when it appears on a balance sheet.

Account Sales: the report of the consignee to the consignor, covering the expenses incurred by the consignee on account of the consignor, the disposition of the consigned merchandise, and the balance due to or from the consignor.

Account, Valuation: an account which supplements an asset account or a liability account in such a way that the two accounts together give the estimated value of the asset or of the liability as it has been affected by such things as depreciation, depletion, market fluctuations, or the possibility of taking discounts. (Examples are Reserve for Depreciation, Reserve for Bad Debts, Reserve for Market Fluctuations, Reserve for Discounts.)

Accounting: the systematic recording of all the essential financial facts of a business enterprise, the construction of summaries of these facts, and the verification and interpreting of the records and summaries.

Accounting, Cost: such accounting as reveals in detail the various expenses incurred in producing a unit of a commodity or of service.

Process Cost Accounting arrives at the unit costs by keeping ordinary accounts and a count of the number of units produced; the inventory of goods in process is estimated by adding to the value of the materials in process an amount for direct labor and for manufacturing expense computed on the basis of the average per cent of completion of the work in process.

Specific Order Cost Accounting arrives at unit costs by keeping records of the materials and direct labor expended on each production order or factory order and applying manufacturing expense on a predetermined basis.

Standard Cost Accounting is a method of comparing unit costs obtained by either the process or the specific order method with very carefully worked out estimates of what is the proper, or standard, cost in the circumstances.

Accrual: an asset or a liability which has grown under the provisions of law or of a contract with the passage of time.

Adjustment: an entry modifying accounts either to correct mistakes or to place upon the books record of events which would not be recorded as the result of ordinary business transactions.

Administrator: one not named in a will but appointed to settle the estate of a decedent by the court having jurisdiction. If a valid will exists the administrator would be called an administrator with the will annexed.

Advance: a loan; in accounting, the advance is usually a loan made informally, that is, without taking a note, to an affiliated organization; the advance may consist of money or of goods or services.

Agent: one who has been given authority to act for another (for a principal).

Agent del credere: an agent who guarantees to his principal the credit of those with whom he deals on behalf of that principal.

Aging Accounts: classifying accounts according to whether they are not yet due or past due, the past due accounts being grouped according to the time they are overdue.

Allowance: a deduction from a claim in order to make a settlement satisfactory to both parties concerned. The word has been proposed as a substitute for "reserve" in naming valuation accounts.

Amortization: the periodic systematic extinction of the premium or discount on bonds. Also the systematic writing off of an inflated value.

Annuity: a series of periodic payments.

Annuity, Deferred: an annuity of which the first payment will not be made for a considerable period of time.

Annuity Due: an annuity of which the first payment is due immediately.

Annuity, Ordinary: an annuity of which the first payment is due after the expiration of one period.

Apportion: to divide income or expense on some basis believed to be equitable; specifically, to divide the service department expenses among the other service departments and the producing departments.

Appraisal: a careful estimate of value.

Appreciation: an increase of value due to a change in market conditions rather than to expenditure of labor on the asset that appreciates.

Appropriation: a formal authorization of the expenditure of funds for some particular purpose.

Assessment: the amount fixed to be paid by a taxpayer or property holder. The term is frequently used for Special Assessment, the amount fixed to be paid by the property holder for some improvement that benefits his property particularly, such as the share of the cost of laying sidewalks, paving, or sewers.

Asset: something owned.

Asset, Accrued: an asset that has grown with the passage of time in accordance with law or contract, such as accrued interest receivable. Classed as current in ordinary cases.

Asset, Capital: a fixed asset, that is, a material asset that is expected to be owned and used for a considerable period.

Asset, Current: either cash or such an asset as in the normal course of business is to be converted into cash, directly or indirectly, within a comparatively short period of time.

Asset, Deferred: a payment made for services in advance of receiving those services, and also supplies on hand to be used in conducting business.

Asset, Fixed: an asset which, under normal conditions, is to be retained and used in the business for a considerable period of time. It is best to confine the meaning of the term to material assets.

Asset, Floating: a current asset. Floating equipment, however, means boats, barges, lighters, floating elevators, etc.

Asset, Intangible: goodwill, or an exclusive privilege.

Asset, Quick: a current asset.

Assignment: a transfer of title or of interest in property.

Audit: verification of the validity of a claim, of the accuracy of the set of books and statements, or of some particular account or statement.

Audit, Internal: verification of original records of transactions before they are entered on the books, and check of the accuracy of the books, when performed as a part of the usual routine by members of the organization being audited.

Average: an intermediate value which may be considered as representative or typical of a series of values. The Arithmetic Average is the sum of the quantities averaged divided by their number.

Balance: a difference, such as the difference between the debit and credit sides of an account.

Balance Sheet: a carefully classified statement of the assets, liabilities, and net worth of a person or organization made from double entry books.

Balance Sheet, Comparative: two or more balance sheets presented in parallel columns.

Balance Sheet, Consolidated: a balance sheet which presents the assets, liabilities, and net worth of a group of affiliated organizations, all intercompany items having been eliminated.

Balance Sheet, Pro forma: a form for a balance sheet showing the account names and the arrangement of the items but not presenting the figures, or presenting imaginary figures. A newer use of the phrase makes it mean a balance sheet as it is expected to appear after the completion of certain proposed transactions, as, for example, after the issue of additional stock and the use of the proceeds to reduce the floating debt.

Balance, Trial: a list of the acounts in a ledger showing in parallel columns either the balance of each account or the debit and credit total of each account.

Bankrupt: one whom the court has declared bankrupt either on his own petition or because he has committed one of the acts of bankruptcy as defined by statute.

Beneficiary: one who is to share in a distribution of property or of profits under a deed of trust or trust agreement, or from an estate.

Bequest: a gift of personal property made by will.

Betterment: an expenditure to increase the efficiency of a fixed asset beyond its efficiency when new, or to increase its life beyond what it would have been with proper upkeep.

Bill of Exchange: an unconditional written order by one person on another, signed by the drawer, directing the second person to pay to bearer or to the order of a designated party a certain sum of money at sight or at a definitely determinable time.

Bill of Lading: a contract whereby a common carrier acknowledges the receipt of goods and agrees to deliver them to a designated person.

Bill of Sale: a document transferring the ownership of personal property.

Bill Payable: an accepted bill of exchange payable. The term is sometimes used to include also notes payable.

Bill Receivable: accepted bill of exchange receivable. The term is sometimes used to include also notes receivable.

Bond: a sealed promise to pay money in definite amount at a definite time or times.

Bond, Callable: a bond which may be paid by the obligor before its maturity.

Bond, Collateral Trust: a bond secured by the deposit of stocks or other bonds with a trustee.

Bond, Convertible: a bond which may be exchanged for shares of stock at the option of the bondholder.

Bond, Debenture: a bond which has no specific security but which rests on the general credit of the obligor.

Bond, Guaranteed: the bond of one organization, the interest and/or principal of which is guaranteed or assured by some other organization.

Bond, Income: a bond, the interest of which may be passed by the obligor without incurring default or the danger of foreclosure.

Bond, Mortgage: a bond secured by the deposit of a mortgage or deed of trust with a trustee.

Bond, Premium: a bond which is to be redeemed at maturity at more than its face.

Bond, Serial: one of an issue of bonds divided into classes with varying maturities.

Bond Table: a table showing the prices of bonds to yield different rates of real interest, the coupon interest and the maturity being given.

Bookkeeping: recording transactions in the books of account and making adjusting and closing entries.

Books: journals and ledgers.

Branch: a subordinate factory, salesroom, or office in a separate locality from the main office, conducting business for the benefit of the organization as a whole, under the general direction of the main office.

Broker: one who brings buyer and seller into communication, but who does not, as a broker, take possession of the object of the negotiation or have a lien upon it.

Budget: an estimate in advance of receipts and expenditures, of income and expense, or of requirements for labor, merchandise, or materials.

Burden: manufacturing expense.

By-laws: the rules of conduct of business formally adopted by the stockholders or owners for the guidance of officers and directors; some state statutes now permit the directors to make the by-laws.

Capital: the interest of the owner or owners in the business.

Capital Account: the account recording the interest of a sole proprietor or of a partner in the business.

Capital Stock: the total of the shares of ownership issued by a corporation or by a trust or by a joint stock company; or the total of shares authorized to be issued.

Capital Stock, Common: the shares of stock conveying to their owners the ordinary privileges of sharing in the control of the organization and of receiving dividends when voted by the directors or trustees.

Capital Stock, Preferred: shares of stock conveying to their owners some privilege not enjoyed by holders of common stock, such as priority in claims for dividends, priority in claims to assets in case of dissolution, or veto power on certain matters, such as bond issues.

Capital Stock, Treasury: stock once issued but reacquired by the issuer and not canceled.

Capital Stock, Unissued: shares of stock which have been authorized but which have not been subscribed or put in the hands of shareholders.

Capital, Working: current assets minus current liabilities.

Capitalization: the par value of the stocks of a corporation, or the value placed on no-par-value stock on the books; often the amount of bonds outstanding is added to the value of the stocks in describing capitalization. For other types of organization, capitalization would be the amount of investment made by the owners.

Capitalization: the quotient of some regularly recurring income by an interest rate taken as proper.

Cartogram: a map on which certain data are shown by means of symbols.

Cash: money, bank deposits, and items ready for deposit in a bank, except items whose prompt collection is uncertain.

Cash, Petty: a fund of money kept for meeting small bills.

Certificate of Deposit: a written statement issued by a bank to certify that a person has a certain sum of money on deposit; such money is not subject to check.

Certificate of Incorporation: a document whereby the secretary of state formally acknowledges the state's acceptance of articles of incorporation and authorizes the incorporators to act as a body corporate.

Certificate, Receiver's: a promissory note or bond given by a receiver on the authorization of the court in order to procure funds for carrying on the business of the organization in receivership.

Cestui que trust: the beneficiary of a trust.

Chattel: an item, often movable property or personal property as distinguished from real estate; also rights in land inferior to freehold.

Charge: debit.

Charge, Apportioned: debits to a departmental expense account for expenses incurred in some other department and first charged to the other department, but later distributed among departments other than that to which the debit was first made.

Charge, Fixed: a recurring expense over which management can exercise slight if any control, such as interest on bonded debt and taxes.

Chart: a graphic representation, such as bars or lines.

Check: an unconditional, written, signed order on a bank to pay to bearer or to order a certain sum of money out of funds on deposit to the credit of the maker.

Check, Certified: a check on which the drawee bank has stamped the word "certified" to indicate that the bank agrees to honor the check when it is presented for payment. (The bank at once charges the amount of the certified check to the account of the drawer.)

Check, Internal: a system of preventing errors and frauds in accounting; such a system involves adequate records, independent calculations, comparisons, and independent verifications of the records of those intrusted with cash and other items of value.

Check List: a list of cash and cash items received through the mail made to furnish independent verification of the entries made on the cash receipts record.

Closing: transferring the balances of nominal accounts directly or indirectly into the profit and loss account, and transferring the balance of the profit and loss account into surplus or other appropriate net worth accounts.

Coinsurance: the division of the risk of loss between the insurer and the insured.

Collateral Security: stock, bonds, notes, or other personal property deposited with the lender to secure the payment of his loan.

Combination: a union of two or more business organizations under one general management; such union may be brought about by lease, by stockholdings, or by consolidation or merger. Sometimes pools, trade associations and simple forms of cooperation are called combinations.

Commercial Paper: negotiable instruments; by some persons limited to promissory notes.

Commission: the remuneration of an agent for transacting business for his principal.

Company, Holding: a corporation which owns stock in one or more other corporations; the holding company may or may not be an operating company.

Company, Subsidiary: a corporation, the majority of the stock of which is held by a holding company or by a trust.

Composition: an agreement between a debtor and one or more of his creditors for the settlement of the obligation or obligations in some way other than that called for by the original contracts; ordinarily the debt or debts are scaled down proportionately.

Consignee: one to whom a consignment is sent.

Consignment: goods shipped by one party, the consignor, to a second party, the consignee, to be sold by the latter for the account of the former.

Consignor: one who ships goods on consignment to another.

Consolidation: the union of two or more business units into one new organization formed for the purpose.

Contract: an agreement enforceable at law.

Control of Expense: a record system which enables one to know each expense as it is incurred, to compare with past records or with standards, and to formulate policies for keeping the expenses as near as possible to the desirable standards.

Control of Merchandise: a system of inventory records which allows the manager to determine whether prices should be reduced to promote sales, whether prices on certain commodities may be increased, and whether more units of certain commodities should be procured.

Controlling Account: an account the balance of which is equal to the sum of the balances of the accounts in a subsidiary ledger.

Controlling Interest: ownership of a majority of the voting stock of a corporation, or ownership of such a portion of the net worth of a business enterprise as will permit the owner to direct its policies.

Conversion: the exchange of one security for another. Expressing currency of one nation in terms of the currency of another.

Convertible Security: a stock or bond which may be exchanged for another type of security.

Conveyance: transfer of ownership; or the document transferring ownership.

Copyright: the exclusive right to print or otherwise to reproduce artistic or literary matter.

Corporation: a body recognized by the state as incorporated, that is, a group of people on whom the state has conferred the privilege of acting as a unit which has rights and liabilities distinct from those of the individual members.

Corpus: the principal of an estate.

Cost: an expense; or the sum of expenses of producing or obtaining an asset or a group of assets.

Cost of Manufacture: the sum of the values of materials used, direct labor, and manufacturing expense in the factory, corrected by the change of inventory of goods in process during the period.

Cost of Sales: the actual cost of the goods sold during the period as nearly as such cost can be determined by cost records or by an appropriate formula.

Cost, Unit: the expense of manufacturing or of otherwise procuring a unit of merchandise or of product.

Coupon: a promise to pay interest for a particular period, attached to a bond so that it may be cut off and presented for payment when due.

Credit: to enter an item in the books so that it will be posted to the right-hand side of an account as accounts are usually kept. The right-hand side of an account.

Credit: the power to obtain money, goods, or services on the express or implied promise of future payment; or the grant of money, goods, or services on the express or implied promise of future payment.

Creditor: one who has granted money, goods, or services to another on the express or implied promise of future payment.

Creditor, Preferred: a creditor without specific security but whose claims are to be met out of the unpledged and unmortgaged assets before anything is paid to those having inferior preference or no preference at all.

Creditor, Secured: a creditor holding a mortgage or other lien on property of the debtor to insure the payment of the debt to the extent of the realizable value of the property mortgaged or pledged. If the value of the security is ample to assure the payment of the entire debt the creditor is "fully secured," otherwise he is "partially secured."

Current Ratio: current assets divided by current liabilities.

Dating: post dating an invoice in order to extend credit for a longer time than appears on the face of the bill.

Debit: to enter an item in the books so that it will be posted to the left side of an account. The left side of an account.

Debt: what is owed, whether money, goods, or services, by one person to another.

Debt, Floating: current obligations, such as ordinary notes payable which are not represented by bonds.

Debt, Funded: bonds payable and what is called "short-time notes," that is, notes engraved and given under seal as bonds.

Debt, Preferred: obligations which the law requires to be paid before obligations of subsequent preference or of no preference at all.

Defalcation: the taking or misappropriating of money which one holds or controls as an agent, officer, or trustee.

Default: failure to meet an obligation when due.

Deficit: the excess of capital contributions over net worth.

Department: an administrative or operating division of an organization; the subdivisions of departments are often called "sections."

Department, Production: a factory department in which materials are actually worked upon in fabricating the product.

Department, Service: a department which does not actually manufacture or sell merchandise, but which acts in a way to facilitate production or selling—such as a personnel department, a stores department, a traffic department, a maintenance department, etc.

Depletion: the exhaustion of a natural resource by extraction or cutting off.

Deposit: something of value placed by one person in the care of another for safekeeping; particularly, cash put in a bank so that the bank may care for it and pay it out on the order of the depositor.

Depreciation: the loss of value of material fixed assets through the wear and tear of use, through the action of the elements, through obsolescence, and through inadequacy.

Depreciation, Accrued: accumulated depreciation on some asset or group of assets.

Depreciation, Composite: the depreciation of the fixed assets as a whole.

Depreciation Fund: a fund provided for the replacement of fixed assets upon their retirement on account of depreciation. A better phrase would be Replacement Fund.

Depreciation Reserve: a valuation account for a fixed asset. The depreciation reserve should have a credit balance equal to the sum of the amounts charged to depreciation of the asset or group of assets valued by the reserve, minus the charges to the reserve for the assets retired.

Depreciation, Total: the difference between the cost and the estimated scrap value of a fixed asset.

Descent: the passing of real property to the heirs of a decedent.

Devise: the disposal of real property by will.

Discount, Bank: interest charged in advance by being deducted from the face of a note before the principal is turned over to the borrower.

Discount, Bond: the face or par value of a bond minus the smaller amount for which it is sold.

Discount, Cash: a deduction from the amount of an invoice for payment within certain contracted time limits. To the customer such a discount is a "purchase discount," to the seller it is a "sales discount."

Discount, Compound: a sum of money minus its own present worth.

Discount on Stock: the difference between the par value of stock and the smaller price at which it is issued.

Discount, Trade: the difference between the list price of a commodity and the smaller price at which it is sold to customers who handle it as raw materials or as merchandise.

Dishonor: failure to accept a bill of exchange when properly presented for acceptance, or failure to pay any negotiable instrument when properly presented for payment.

Dissolution: terminating the existence of a business organization by realizing its assets and liquidating its liabilities, and distributing what remains to the owners.

Distribution: the passing of personal property to the heirs of a decedent. More broadly, the division of any property among those having claims to it.

Dividend: a distribution of assets.

Dividend, Liquidating: a distribution of the assets of a firm in the process of reducing its capital or of dissolution.

Dividend, Scrip: the distribution to stockholders of promises to pay money at a future time instead of present cash.

Dividend, Stock: the reduction of surplus by distributing among the stockholders more shares in proportion to their holdings, thus increasing the number of shares held by each without changing his proportionate interest or the book value of his holdings.

Double Entry: so entering transactions on the books of account that, for each transaction, the sum of the items debited equals the sum of the items credited.

Draft: a bill of exchange.

Embezzlement: the fraudulent appropriation for one's own use of property intrusted to one's care.

Endorsement: see indorsement.

Entry: the record of a transaction or of an adjustment in the books of account, particularly in a journal.

Estate: the aggregate of property as left by a decedent or as taken over by a receiver or by a trustee in bankruptcy. Also, an interest in land.

Estate, Life: an interest in property which is to continue during the life of some designated person, after which the interest will be transferred to a different owner.

Exchange, Foreign: the price at which the money of a foreign country sells in the form of drafts.

Exchange, Par of: the value of the standard gold coin of one country expressed in terms of the standard gold coin of another country.

Executor: a person named in a will to settle the estate of a decedent and appointed to that service by a court.

Exhibit: a presentation of accounting or statistical facts made in systematic form. Sometimes the main statements, such as balance sheets, are called exhibits; but at other times the word exhibit is used for a presentation of data supporting some item or section of a main statement.

Expenditure: an outlay of cash or the incurring of a debt for some asset or service received.

Expenditure, Capital: an expenditure for the acquisition of a fixed asset, an investment, or an intangible asset, or for the reduction of a liability.

Expenditure, Revenue: an expenditure which decreases net worth; an expense.

Expense: an expenditure that decreases net worth or tends to decrease it.

Expense, Administrative: an expense incurred in the general oversight or management of an organization.

Expense, Applied: an amount fixed at some predetermined rate to be added to some definitely ascertained portion of cost to obtain total cost, as in factory cost accounting known costs of direct material and direct labor are increased by an increment for manufacturing expense determined by a predetermined rate.

Expense, Controllable: an expense which can be increased or curtailed at the will of the management.

Expense, Financial: an expense incurred for the sake of securing control of capital.

Expense, Fixed: an expense over which the management can exercise very little if any control, and which is definite in amount from period to period, being nearly constant.

Expense, General: an expense incurred for the benefit of the organization as a whole; this term usually includes administrative expenses.

Expense, Manufacturing: any factory cost except direct materials and direct labor.

Expense, Organization: the expenditure incurred in bringing an organization into existence, such as incorporation fees, filing fees, and the compensation of the attorneys and accountants who assist in formation.

Expense, Selling: an expense incurred in the promotion of selling or in actually closing sales contracts.

Expense, Uncontrollable: an expense which cannot be increased or decreased at will by the management; the term is broader than Fixed Expense.

Expiration: the extinction of a contract or privilege as the result of the passing of time under the terms of the contract or of the law.

Factor: an agent who has possession of goods belonging to the principal, and who may give good title to a purchaser, and who may collect from such purchaser on behalf of the principal.

Franchise: the right of a corporation to its corporate existence. A special privilege granted by the state or by a subdivision thereof.

Fund: a group of assets set aside for some special purpose, such as paying a debt or erecting a building.

Fund: in municipal accounting, a group of related accounts recording transactions within the control of one body or relating to homogeneous activities, such as the capital fund, the special assessment fund, and the general fund.

Fund, Depreciation: a fund for the replacement of retired assets.

Fund, Imprest: a fund out of which bills of certain designated classes are paid, which is kept at a constant amount by replenishment when the bills are entered on the general books. The sum of the money and the receipts in the fund is kept constant.

Fund, Retirement: a fund for the purpose of replacing fixed assets as they have to be withdrawn from service.

Fund, Sinking: a fund accumulated by periodical systematic contributions, the purpose usually being the redemption of an issue of bonds at their maturity.

Gold Points: the prices of foreign exchange which limit the range in which the prices of bills fluctuate because beyond these prices it would be cheaper to import or to export gold.

Goods in Process: materials in a factory upon which some labor has been expended, but not enough to finish the product.

Goodwill: such a reputation for rendering satisfaction that customers come of their own accord or that goods can be sold in satisfactory volume without exceptionally skilled sales exertion; or the expectation of receiving exceptionally high profits in the future, higher profits than those due to especially good sales organization, to especially efficient management, or to monopoly enjoyed by the organization claiming goodwill.

Graph: a line plotted on coordinate paper to represent a series of related facts.

Heir: one to whom the title to real estate passes by law on the death of the owner, or to whom the title would pass if the owner should die intestate.

Histogram: a graphic representation whereby the quantities are represented by rectangles of uniform width arranged in chronological order, or by a line graph in which one axis represents the passage of time.

Hypothecate: pledge as security for a loan, possession passing to the lender.

Inadequacy: lack of capacity of an asset to carry the load of work demanded of it, even though the asset be in perfect working condition.

Income: that which comes to a person or to an organization as payment for labor, or for services rendered, or as gain from land, business, or investments.

Income, Gross: income before deducting the expenses of obtaining it.

Income, Net: gross income minus the expenses of obtaining it.

Increment: an increase, particularly an increase in value.

Indemnity: reimbursement for a loss or a damage sustained.

Indorsement: writing one's name upon a negotiable instrument in order to transfer title, or to strengthen the credit of the maker or acceptor.

Indorsement, Accommodation: an indorsement to enable the maker or holder of a negotiable instrument to discount it or otherwise to dispose of it on the strength of the contingent liability of the indorser.

Indorsement, Qualified: an indorsement so worded as to release the indorser from liability to make good the negotiable instrument in case the person primarily liable fails to pay.

Indorsement, Restrictive: an indorsement which limits the use to which the indorsee may put a negotiable instrument or the amount collected thereon.

Indorsement, Special: an indorsement which names the person to whom or to whose order the negotiable instrument is to be paid.

Inheritance: the passing of property, real or personal, from a decedent to an heir.

Insolvency: the state in which the value of the assets is less than the amount of the liabilities.

Insolvent: one whose assets are insufficient when converted into cash to meet his liabilities.

Installment: a portion of a debt which is payable in definitely prearranged amounts at definite due dates.

Installment Sales: sales the collection of which is to be in installments.

Installments, Liquidation by: liquidation of debts or of capital accounts by payments prorated according to the amount of claims of creditors, or according to the capital interests after deducting all realized or possible losses, the payments being made either at regular intervals or as cash becomes available.

Interest: payment for the use of borrowed money or funds.

Interest, Effective: the rate of interest actually realized as distinguished from the nominal rate; that is, a contract may call for interest at a given or nominal rate, but commissions, discounts, or premiums may add to or decrease the actual interest cost.

Interest, Minority: that portion of the ownership of a business organization which is not concentrated in the organization or person or group that owns a controlling interest.

Interpolation: computing values intermediate between known values.

Intestate: without leaving a will.

Inventory: a list of materials, goods, or securities on hand by quantity and value.

Inventory, Book or Perpetual: a set of records showing quantities, or quantities and values, of materials, work in process, finished goods, or merchandise, received and issued by classes or types.

Inventory, Physical: list of the actual items of materials, work in process, and finished stock, or of merchandise on hand, made by actual inspection and count or the measurement of the stock.

Inventory, Retail: an inventory in which the value of the stock on hand is calculated at retail by means of a formula involving opening inventory, purchases, marks-up and marks-down, interdepartmental transfers, net sales, and per cent of mark-on.

Investment: capital lent or employed in the expectation of realizing earnings and the ultimate return of the capital; holdings of securities, negotiable instruments, land not used in the business, or interests in other businesses.

Invoice: a statement sent out by a seller to a buyer giving items, quantities, prices, and total money value of goods sold, and defining terms of the sale.

Joint Stock Company: a company composed of individuals whose interest is evidenced by shares of stock transferable at will, which is not incorporated, and which operates for gain; the joint stock company is a modified form of partnership.

Joint Venture: a business enterprise of comparatively brief duration undertaken by two or more persons or organizations for the purpose of sharing the profits.

Journal: a book of original entry. The simple journal has columns for date, particulars, posting reference, debit amounts and credit amounts. Specialized journals may have an indefinite number of columns, each for a particular class of transactions.

Labor: the expenditure of human effort in production or business.

Labor, Direct: labor expended in changing the form of materials in manufacture.

Labor, Indirect: labor in a factory not expended in changing the form of the materials; the term includes supervision, record keeping, and furnishing services like transportation, light and power, or maintenance.

Labor, Productive: a less accurate term for direct labor.

Labor, Unproductive: a less accurate term for indirect labor.

Lapping: a method of concealing a shortage of cash by crediting the remitter whose money has been taken with funds received from a later remitter, crediting the later remitter with funds received still later, and so on.

Leader: an article or line of merchandise sold at a very low price in the hope of attracting customers to the place of business and thereby encouraging them to buy other articles sold more profitably.

Leasehold: a lease of land and/or buildings for a term of years.

Ledger: a group of related accounts kept together as a unit.

Ledger, General: the ledger which contains the asset, the liability, the net worth accounts, the more important nominal accounts, and the control accounts, although some of the asset and liability accounts in the general ledger may be controlled accounts, and although sometimes some of the more important accounts are removed from the general ledger and kept in a private ledger.

Ledger, Subsidiary: a ledger containing very closely related accounts which are controlled by an account in the general ledger or in some other subsidiary ledger.

Legacy: personal property given by will.

Legacy, Demonstrative: a legacy to be paid out of some specified fund.

Legacy, General: a legacy to be paid out of the general funds of an estate.

Legacy, Residuary: a legacy consisting of the remainder of the estate after the specific, demonstrative, and general legacies have been paid.

Legacy, Specific: a legacy of a particular article or group of articles.

Legal Tender: that which has been declared by law to be a satisfactory medium for the settlement of any debt payable in money. In the United States gold coin, silver dollars, gold certificates, and treasury notes of 1890 are unlimited legal tender; United States notes are unlimited legal tender except for payment of customs duties and for interest on the public debt; subsidiary silver coin is legal tender up to $10.00, and nickels and cents up to $.25.

Letters of Administration: the commission given by the court to the administrator of an estate at his appointment.

Letters Testamentary: the commission given by the court to the executor of an estate at his appointment.

Levy: an amount fixed as a tax or an assessment; the fixing of such an amount.

Liability: a legally enforceable obligation to pay money or to render service.

Liability, Accrued: a liability that has grown with the passage of time according to the terms of a contract or of law.

Liability, Capital: capital stock and funded debt: capital stock is not actually a liability.

Liability, Contingent: that which is not a liability but is apt to become a liability upon the happening of some possible event.

Liability, Current: a liability that must be met within a short time, that is, within a year.

Liability, Deferred: the obligation to render service for compensation which has been received in advance.

Liability, Fixed: a liability that is not due for payment for a considerable time, that is, for more than a year after its date of issue.

Liability, Preferred: a liability which, in case of dissolution or insolvency, must be paid in full before anything is paid to the general creditors.

Liability, Secured: a liability the payment of which is insured by a lien or a mortgage held by the creditor upon some property of the debtor.

Liquidate: pay.

Loss: a decrease of net worth.

Loss, Extraneous: a decrease of net worth as the result of some event which is not part of the ordinary course of business.

Machine Hour: the operation of a machine for an hour.

Maintenance: expenditures to keep fixed assets in good condition for efficient operation.

Maintenance, Deferred: the amount which is necessary to restore to efficient operating condition assets of which the maintenance has been neglected.

Margin: a difference.

Mark-down: a decrease of a marked selling price.

Mark-on: the difference between cost and the original marked selling price.

Mark-up: an increase of a marked selling price, often used to include what is defined above as mark-on.

Marshal: to arrange.

Material: matter which after passing through a manufacturing process becomes part of the finished product.

Material, Direct: material which can be traced to particular jobs or lots manufactured.

Material, Indirect: material which is issued to the factory but which cannot be traced to any particular job or lot without uneconomical expenditure.

Material in Process: material upon which some labor has been expended in the factory.

Maturity: the time at which a debt comes due.

Merchandise: finished commodities held for sale.

Merger: the absorption by one existing business unit of one or more other organizations, the surviving organization acquiring title to the properties of those merged and assuming their liabilities.

Misappropriation: putting funds intrusted to one's care to a wrongful use.

Money: whatever is universally accepted within a nation in payment of debts.

Mortgage: a formal transfer of property, which transfer is rendered void if a certain debt mentioned in the mortgage is properly paid.

Municipality: an incorporated local unit of government smaller than a county (except such cities as New York which covers five counties).

Negotiable Instrument: an unconditional written order or promise to pay to bearer or to the order of a named party, a certain sum of money at a definitely determinable future time, signed by the maker.

Net worth: the interest of the owner, or of the owners, in a business.

Note Payable: a promissory note on which one is liable as maker.

Note, Promissory: an unconditional promise to pay to bearer or to the order of some named party a sum certain of money at a fixed or a definitely determinable future time made in writing and signed by the maker.

Note Receivable: a promissory note owned by the person to whom it is payable.

Obsolescence: the decrease of value of an asset which is less efficient than other assets which have been improved by inventions or adapted to changes in consumer demand.

Order, Factory: written instructions to the factory manager to manufacture a designated amount of a designated commodity for stock.

Order, Production: written instruction to the factory manager to manufacture a designated amount of a designated commodity for a customer who has ordered it.

Order, Purchase: a request to a supplier to furnish certain designated materials, supplies, or merchandise.

Order, Standing: a record of the expenses incurred by and for a factory department during a certain period; also a request to a supplier for delivery of commodities at definite specified periods.

Overdraft: a debit balance in the account of a depositor on the books of a bank.

Overhead: manufacturing expense; sometimes broadened to include any expense except direct materials, direct labor, and direct selling expense.

Partnership: an unincorporated organization consisting of two or more persons who have combined their labor, skill, and/or capital in conducting a legal business with the purpose of sharing the profits as such.

Partner's Loan: funds advanced by a partner to the firm of which he is a member, but as a loan rather than as an investment of capital.

Patent: a grant by the government of the exclusive right to manufacture, to use, and to sell an invention; the right is transferable.

Pay: to transfer cash in settlement of an obligation.

Payment, Deferred: a payment made in advance of the rendering of the service for which the payment is made.

Payroll: a list of the names of employees and the amounts due them; the total of the amounts due the employees.

Per Cent: proportional part of a whole expressed in hundredths.

Period: the interval between one adjusting or closing of the books and the next adjusting or closing, or between the due dates of some regularly recurring payment such as rent or an annuity.

Personal Property: the legal right to the use, enjoyment, and transfer of movable property.

Personal Representative (of one deceased): the administrator or executor of the estate of a decedent.

Pledge: personal property placed by a borrower in the possession of the lender as security for the payment of a loan.

Post: to transfer an item from a book of original entry (or from the original record of a transaction) to the appropriate account in the ledger.

Premium: the amount by which the payment for a stock or bond exceeds the par value of the security.

Present Worth: an amount which, accumulating at compound interest from the present to a definite future date, will at that future date equal the sum of which the amount is the present worth.

Price: the amount measured in money at which property is sold.

Price, Asking: an amount which an owner names as the price at which he is willing to sell some property.

Principal: a capital sum, such as the amount on which interest may be calculated.

Principal: the employer of an agent.

Probate: proving the genuineness of a will.

Proceeds: the net amount received from a negotiable instrument transaction, such as the principal plus interest minus collection fees, or the face minus the discount.

Profit: an excess of income over expense.

Profit, Gross: the excess of some income over the immediate cost of getting that income, as gross trading profit is the net sales minus the cost of sales.

Profit, Net: the sum of all the incomes less the sum of all the expenses of a particular business.

Profit, Unrealized: an increment in value which has not been turned into cash or receivables by the sale of the asset.

Property: the right to have in possession, to use or enjoy, and to dispose of a thing to the exclusion of others.

Property, Personal: movable property as distinguished from real estate.

Property, Real: rights of ownership in land and the fixtures thereon.

Proprietorship: the value of the interest in a business of the owner or of the owners; net worth.

Prorate: to divide or distribute according to some standard.

Protest: a certificate signed and sealed by a notary and sent to the maker of a bill of exchange and to each endorser of any negotiable instrument which has been dishonored, stating that the instrument has been duly presented for acceptance or for payment and that such acceptance or such payment has been refused, and that the notary has protested against this dishonor.

Ratio of Increase: the amount by which each term in a geometrical series is multiplied to obtain the succeeding term.

Real Estate: land, buildings, and other property so attached to land as to be considered part of it.

Realize: convert into cash.

Receiver: one appointed to take possession of property and to preserve it.

Receiver in Equity: one appointed by the court to take possession of a business which is insolvent or threatened with insolvency, for the purpose of restoring it to solvency if possible, or of liquidating it if that is necessary.

Reconciliation: a statement showing the consistency of two accounts or of two amounts.

Redemption: the payment of bonds or of notes by the maker; buying back.

Referee in Bankruptcy: a person appointed by the court to supervise the liquidation of bankrupt estates as a representative of the court.

Refunding: the exchange of a new issue of bonds or of notes for an old issue.

Registration of Bonds: the formal recording of the ownership of bonds by the issuer or his agent in order to protect the owner from loss by the theft, misplacement, or destruction of the bonds.

Remainderman: one to whom property is to revert upon the termination of an estate for a term of years or for life.

Rent: payment for the use of land or of real estate; in a broader sense, the payment for the use of any material property.

Rent of Annuity: a periodic payment.

Repair: an expenditure to keep a fixed asset in good working condition.

Replacement: an expenditure to renew with new parts some part or parts of a fixed asset, or the entire asset; there is no distinct dividing line between repairs and replacements.

Replevin: recovery of possession of chattels wrongfully in possession of another.

Requisition: a request or order for goods or services made by one member of an organization upon another member.

Reserve: a portion of surplus set aside for some specific purpose.

Reserve, Covered: a true reserve which is balanced by a fund of like amount set aside for the same purpose as that of the reserve.

Reserve, Depreciation: a valuation account for a fixed asset. The depreciation reserve should have a credit balance equal to the total charged to depreciation for the asset involved, less charges for replacements.

Reserve, Retirement: a synonym for depreciation reserve.

Reserve, Secret: the excess of the net worth that would be revealed by the books if all items were correctly valued over the net worth actually appearing on the books.

Reserve, Valuation: an account to show the difference between the cost or nominal value of some asset and its estimated correct accounting value; not a part of surplus.

Resources: assets.

Revenue: income, especially the income of a public utility or a municipality.

Right, Stock: the privilege of subscribing to a new issue of stock of a corporation in which the original recipient of the right owns stock. A "New York right" is the right to subscribe to that portion of a share of new stock which goes to the holder of one share of the old stock. A "Philadelphia right" is the right to subscribe to one share of the new stock.

Royalty: payments to the owner for the use of a patent or copyright; payments for the privilege of extracting natural resources from land; sometimes payment for the use of any property.

Sale: the transfer of ownership in property for a consideration of value.

Salvage: receipts from the sale of retired or damaged fixed assets.

Salvage Account: an account to which can be charged the estimated value of spoiled work and retired assets, and which is credited with the amounts received on the sale of such assets or with their cost if returned to stock or to service reconditioned.

Saturation Point: the state of the market for a commodity if, for a given price range, further sales depend upon replacements of units of the commodity already in use and on the increase of population.

Schedule: a systematic presentation of data, usually in support of some item or group of items in one of the main accounting statements.

Security: property pledged or mortgaged in order that, in case the debtor defaults payment of principal or of interest, the property may be sold and the proceeds used to satisfy the creditor's just claims.

Security: a stock or bond or "short-time note."

Share of Stock: a unit of ownership in the net worth of a corporation, business trust, or joint stock company.

Single Entry: any attempt to keep books short of complete double entry.

Specie: gold and silver coin.

Statement: a written presentation of financial facts, such as a bill to a customer, the condition of a bank account, a balance sheet, a manufacturing statement, etc.

Statement, Comparative: two or more statements arranged in parallel columns in order to facilitate comparison.

Statement, Consolidated: a statement presenting the data for two or more affiliated organizations, like items having been combined, and interorganization transactions and debts eliminated.

Stock: see capital stock.

Stock: goods on hand.

Stores: materials, supplies, and partly finished goods in the stock or store room, building, or yard, kept to be issued to the factory for use in production.

Subsidiary: a business organization which is controlled by another organization.

Supplies: material things used in carrying on a business but not carried for sale and not to be incorporated in economically measurable quantities in the goods manufactured.

Surplus: the amount by which the net worth of a business exceeds the par value of the capital stock (or exceeds the amount for which no-par-value stock was issued plus the amount of par-value stock outstanding). Parts of the actual surplus may appear in such accounts as Surplus, Undivided Profits, Premium on Capital Stock, and Reserves.

Surplus, Capital: surplus which is not the result of ordinary operation of the business but which has originated in unusual circumstances, such as the sale of fixed assets at more than their book value, sale of stock at a premium, donations, enhancement of values carried on books after appraisals, etc.

Surplus, Earned: surplus which has originated in the profits of usual operations.

Surplus, Municipal: the capital account of a municipal fund.

Syndicate: a group formed to carry out some particular enterprise which is usually of brief duration.

Synoptic: a columnar book which fulfills the functions of both journal and ledger.

Tax: a compulsory contribution exacted by the government, presumably for the general good.

Tenant: one who occupies or uses the property of another with the consent of the owner; the recipient of an annuity.

Tenant, Life: one who receives the income of a property, or who occupies the property during some person's life. On the death of that person the income or the property is transferred to another.

Testament: a will disposing of the estate of a decedent.

Testator: the maker of a will.

Trade Debtors: persons who owe on open account for merchandise.

Trust: the placing of property in the possession of one person for the benefit of another.

Trust, Business: an organization for the conduct of business in which the investors turn over their funds or properties to trustees who manage the whole for the benefit of the investors or stockholders.

Trust Res: property held by a trustee in trust.

Trustee: one to whom property has been committed for the benefit of another.

Trustee in Bankruptcy: the person elected by the creditors of the bankrupt to liquidate the bankrupt estate and distribute it among the creditors under the direction of the court.

Turnover: a ratio between some factor of income or of expense and some item or group of items among the assets or liabilities or net worth.

Turnover of Accounts Receivable: net sales divided by the average amount of accounts receivable.

Turnover of Merchandise: cost of sales divided by average inventory at cost, or net sales divided by the average inventory at retail.

Upkeep: synonym for maintenance, that is, expenditure for keeping assets in efficient working order.

Value: the amount of money for which an asset may be sold.

Value, Book: the value as shown by the books of account; often this consists of the cost less a valuation reserve.

Value, Cash Surrender: the amount that will be paid to the insured by an insurance company upon the giving back of the policy for cancellation.

Value, Going: the value of a public utility as a whole over and above the values of the parts, arising from the fact that the parts have been assembled.

Value, Reproduction: the estimated cost of replacing a property at a specific time, basing the estimate upon the prices and wage scales then current. The reproduction value decreased by allowance for depreciation is often used as the basis of rate fixing for public utilities.

Value, Scrap: the estimated amount at which an asset may be sold when it is retired from use.

Vendee: one to whom something is sold.

Vendor: one who sells something.

Voucher: a written proof of the reality or of the propriety of a transaction.

Warrant: a paper to serve as the evidence of a stockholder's right to purchase additional stocks if a corporation is issuing new stock.

Warrants: orders on a municipal treasurer to pay out the public funds.

Will: directions for disposing of one's property after one's death.

Work in Process: material in the course of being made into finished stock.

Work Sheet: any paper on which data are collected or computed as a preliminary to using the material in making statements, reports, or adjustments.

Year, Natural Business: a year, the opening and closing of which is so placed in the calendar year as to make annual statements and balance sheets of the closing date most representative of the results of operations.

Yield: the actual income, or the actual rate of interest realized on an investment.

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Date Due

~~Nov. 27~~
~~July 23~~
~~Nov 4~~
~~Mar 4~~
~~Apr 9~~
~~Oct 25~~
~~Nov. 1~~
~~Dec 9~~
~~Dec 16~~
~~Jan 20~~
~~Mar 4~~
~~May 4~~
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NOV 19 1946 11/26
NOV 26 1946 12/3
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JAN 20 1947 2/3
NOV 12 1946 11/27
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Streightoff, F. H.,
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APR 11 1942 4-18 Irving L. Dunbar
OCT 29 1946 11/5 RC Riley 934 Furnald
NOV 19 1946 RC Riley 934 Furnald
NOV 26 1946 12/3 C. H. Read 509 W 110th St. NYC
DEC 2 1946 12/9 RC Riley 934 Furnald
C. H. Read, 509 W. 110 St., N.Y.C.
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